DWR

SPRING/SUMMER 2013

a magazine from the
California Department of
Water Resources

After 40 days at Knaggs Ranch,

it's a BIG FISH

New ways to manage water & **grow** salmon

Page 6

Our department reflects the public values of the times. We built the California State Water Project just as an era of big-dam construction was waning. A different environmental ethic took hold, and we've embraced it. Today, DWR is as much about giving farmers the daily crop evapotranspiration data they need to avoid excess irrigation as it is about delivering water. The scope of our mission has broadened, but some things haven't changed at DWR. That includes our "can do" attitude and our pursuit of durable ways to meet all of California's water needs.

This spring, DWR marked milestones on two such endeavors. First, after seven years of sometimes difficult collaboration with federal and local agencies and stakeholders, we released a greatly refined draft of the Bay Delta Conservation Plan (BDCP). The BDCP will be the largest addition to the State Water Project since its original construction. The BDCP proposes new water intakes on the Sacramento River in the north Delta and two 35-mile-long tunnels to carry water to the existing state and federal pumping plants in the south Delta.

The BDCP also involves the creation of at least 100,000 acres of wildlife habitat in the Delta over the next 40 years. New intakes with modern fish screens would greatly reduce the direct harm of pumping to Chinook salmon and Delta smelt. Habitat restoration should help boost survival rates for those and other fish species by creating better shelter and richer food supplies.

The BDCP is one of the largest aquatic habitat conservation plans in the nation. The plan charts a much more promising course for us to stabilize water project deliveries than the current trajectory, in which declining fish populations lead to ever tighter restrictions on Delta pumping.

The BDCP is ambitious and comprehensive, with a transparent and systematic approach to dealing with scientific uncertainty. Expect to hear a great deal about the plan in coming months as the public debates the emerging details. Learn more at *www.baydeltaconservationplan.com*

We're moving past conflict to an era of cooperation that inherently includes environmental stewardship, as the BDCP shows. But the BDCP cannot solve all of California's water supply problems. Most supplies are developed at the local and regional level. That's why DWR is also working to realign California's diffuse water management system through the principles of integrated water management (IWM).

In early April, DWR hosted a first-ever IWM Summit and two-day conference to bring together hundreds of water managers from across the state to brainstorm and share ideas on how to incorporate multiple flood protection, ecosystem, water quality, and water supply benefits into all water projects. Participants tackled the difficult issues of quantifying benefits and creating a stable source of funding. State investments, through general obligation bonds, have rewarded local agencies for working together. Those investments have generated real success, and we must find ways to maintain that momentum.

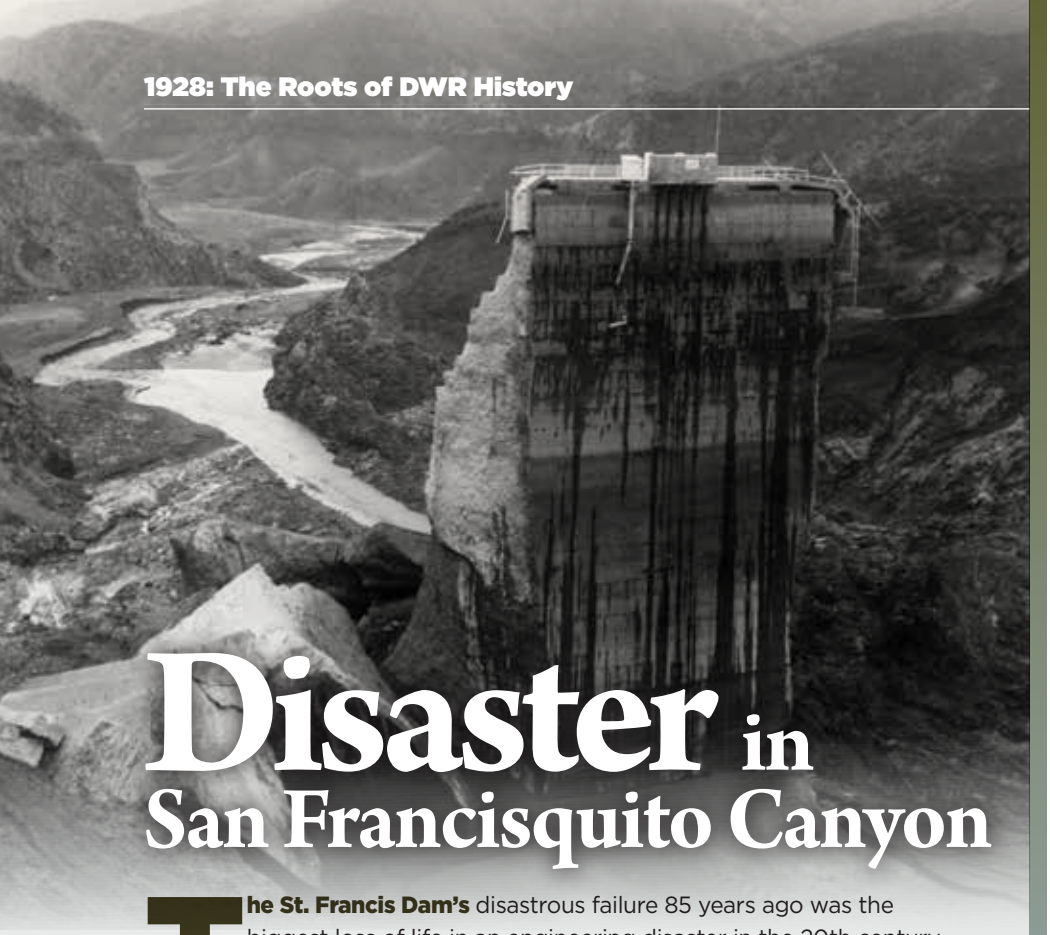
We're working on dual fronts to stabilize Delta water deliveries and bolster regional water self-sufficiency. Those collaborative, comprehensive efforts embody our future as a department, and they would safeguard water supplies in the far-sighted, long-lasting, and balanced way that Californians expect.

Mark Cowin
DWR Director

What's INSIDE

Making a comeback . . . *story on page 19*

On the Cover:
Chief of the Aquatic Ecology Section Louise Conrad and Program Manager II Ted Sommer of DWR's Division of Environmental Services with John Brennan (center) of Robbins Rice Management measure the Chinook salmon that were dropped into twenty acres of flooded rice field as part of the Knaggs Ranch project.



Disaster in San Francisquito Canyon

The St. Francis Dam's disastrous failure 85 years ago was the biggest loss of life in an engineering disaster in the 20th century and California's second deadliest disaster after the 1906 San Francisco earthquake and fire.

Two minutes before midnight on March 12, 1928, the 205-foot-high concrete dam in the San Francisquito Canyon northwest of Los Angeles breached, killing more than 450 people. Bodies washed as far as the Pacific Ocean. Nearly 8,000 acres of farmland, 1,200 homes, and 10 bridges were devastated.

St. Francis Dam disaster

10
bridges washed out

450+
dead or missing in flooding

1,200
homes demolished

8,000
acres of farmland devastated

St. Francis Dam was designed and constructed by the Los Angeles Department of Water and Power without regulatory oversight. As a result of this disaster, the California Dam Safety Program was created in 1929 by the California Legislature.

When DWR was created in 1956, the program became known as DWR's Division of Safety of Dams (DSOD). DSOD is required by State law to regulate 1,250 non-federal publicly and privately owned dams to prevent dam failure. Safeguarding the people and property of California from dam failure remains DSOD's mission today.

DWR magazine

Edmund G. Brown Jr.
Governor

John Laird
Secretary for Natural Resources

Mark Cowin
Director, Department of Water Resources

Nancy Vogel
Assistant Director, Public Affairs

Maggie Macias, *Editor*

Contributing Writers
Michael Anderson • Lauren Bisnett
Jennifer Iida • Christina Jimenez
Saunthy Nicolson-Singh • Elizabeth Scott
Ted Thomas

Design
DWR Graphic Services
Bob Peterson • Scott Olling

Photography
DWR Photography Unit
John Chacon • Carl Costas
Paul Hames • Florence Low

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Please send your questions, comments, or story ideas to:

DWR Magazine
Public Affairs Office
Department of Water Resources
1416 Ninth Street, Room 252-21
Sacramento, CA 95814

Email:
dwrpeople@water.ca.gov
Phone: (916) 653-8743

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DWR has broken ground at Skinner Fish Facility for

Delta Fish Science Building

By Elizabeth Scott

DWR broke ground February 1 for construction of a Fish Science Building at the John E. Skinner Delta Fish Protective Facility in Byron.

The building will be used to tag and hold fish for various studies needed to meet regulatory requirements for operation of the California State Water Project (SWP) under the Biological Opinions and Incidental Take Permits issued by the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the California Department of Fish and Wildlife. Construction is expected to be completed by late 2013.

The studies to be conducted in the new science building will be used in analyzing the effects of the SWP on Delta fishes. The building will be managed and studies conducted by DWR's Bay Delta Office.

DWR Environmental Scientist Virginia Afentoulis will serve as facility manager and coordinate day-to-day operations of the facility. Roger Padilla of the Bay Delta Office has managed the design, review, and construction of the facility by the Division of Engineering and the Division of Operations and Maintenance.

"This building will increase work and storage space and provide a more reliable water and power supply for the fish holding tanks," said Kathy Kelly, Chief of the Bay Delta Office. "It will greatly improve our capability to conduct fish studies related to our facilities and to increase our understanding of fish behavior within the Delta."

This building will increase work and storage space and provide a more reliable water and power supply for the fish holding tanks.

—Kathy Kelly,
Chief of the Bay Delta Office

The Building

The interior of the building will include a small laboratory, fish rearing tanks, an office, and an area to store study gear and equipment. Additional fish rearing tanks will be located outside the building along with a water treatment system.

The new Fish Science Building will be integrated into the John E. Skinner Delta Fish Protective Facility, two miles upstream from the Banks Pumping Plant. The existing facility named for the late John E. Skinner, a State Department of Fish and Game biologist, and national authority on fish protective facilities and striped bass research, contains behavioral guidance devices, known as louvers, that divert most fish away from the pumps that lift water into the California Aqueduct. The facility is near the Tracy Fish Collection Facility at the federal C.W. Jones Pumping Plant.

At the Skinner Fish Facility, up to 15 million fish a year are saved from the pumps and returned to the Delta. Operated since 1968 by DWR, the facility plays an important role in protecting Bay Delta fish. The system is effective, but not flawless. Some fish fall prey to predator fish in the Clifton Court Forebay before reaching the screens and near the screens themselves. Small fish, larvae, and eggs can also slip through the louvers and make their way downstream of the Delta to reside and grow in San Luis Reservoir and other reservoirs along the California Aqueduct where some, such as striped bass and catfish, become the basis for recreational fisheries.

(Left to Right) At the February 1st ground breaking ceremony for the Fish Science Building at Skinner Fish Facility in Byron, DWR participants included Javier Miranda, Teresa Geimer, Chief Kathy Kelly and Roger Padilla of the Bay Delta Office with Chief Joel Ledesma and Rey Chavez of Delta Field Division.

The facility—scheduled for completion late this year—will be used to tag and hold fish for studies to meet regulatory requirements for operation of the California State Water Project.

By Saunthy Nicolson-Singh

a Nursery Story About Young Salmon

Young Salmon Released
From the Oroville Feather River Fish Hatchery, 50,000 fingerlings were hauled in a trailer to the Yolo Bypass. They were weighed, tagged, and released into a rice field on February 19.

California Department of Water Resources

(Below) Environmental Scientist **Josh Martinez** of DWR transported juvenile salmon in a trailer from Feather River Fish Hatchery in Oroville to Knaggs Ranch in Woodland.

On February 19, welcome rain finally fell from the sky—perfect timing to plant 40,000 Chinook salmon fingerlings into flooded rice fields in the Yolo Bypass, just 11 miles from Sacramento. Salmon fingerlings in rice fields may seem an odd pairing, but here they're part of a continuing project developed by DWR environmental scientists, the University of California at Davis (UCD) Center for Watershed Sciences, and a private partnership of farmers.

The Knaggs Ranch project began as a 2012 pilot study to determine if an agricultural floodplain habitat could help Chinook salmon fingerlings grow bigger and stronger before they swam down the river into the Delta.

Last year, 10,000 tagged salmon fingerlings from the Oroville Fish Hatchery were planted on five acres of flooded rice fields for a 42-day feast. After release into the Sacramento River, more than half the salmon were caught and measured to reveal rapid growth, better body condition. This increases the odds that the fish will return to spawn and increase the overall number of Chinook in Sacramento Valley rivers.

This was no surprise to Ted Sommer, Program Manager II in DWR's Division of Environmental Services (DES). He has logged 22 years with the Department. The Knaggs Ranch project is Sommer's brainchild, an idea that grew from his PhD dissertation.

"There are no shallows in rivers with rip rap on the levee sides," said Sommer. "It's too steep, so there's nowhere for the fish to hide, eat and grow. We've been studying the bypass for 15 years and how important it is for fish."

The Knaggs Ranch project was designed to provide young fish with rearing habitat, much of which was lost when dams and levees harnessed flooding in the Central Valley. The almost 40-mile-long Yolo Bypass, created as an overflow for the Sacramento River during heavy precipitation years, offers valuable farmland that Sommer observed could double as increased fish habitat.

There would be no project without Robbins Rice Company and Laney Thornton, who make up Knaggs Ranch LLC, owners of the bypass fields. John Brennan of Robbins Rice Company, also part of Cal-Marsh and Farms, which manages Knaggs Ranch, oversees the particulars of irrigating the fields and ridging the levees for the project.

"We grow (short grain) Koshihikari rice here that's sold domestically in ethnic food stores," said Brennan. "We need 150 days to grow it, but for two months of the year we can grow a couple of million fish. In five years, I'd like to see five million fish coming out of here. There's a lot of (fish) food out here."

The Project

In this second phase of the project, a small, oxygen-fortified trailer carrying 50,000 fingerlings from the Oroville Fish Hatchery drove onto a ranch section just north of Woodland. These fingerlings were tagged at the hatchery with a coded wire inserted into their nose that indicates the fish are part of the Knaggs floodplain project. Their adipose fins were clipped to distinguish hatchery and wild fish.

DWR Senior Environmental Scientist and Chief of DES' Aquatic Ecology Section Louise Conrad moved quickly to orchestrate the fish drop into nine flooded rice checks. Levees separated the checks into three sections each of three agricultural treatments: disked, rice stubble, and fallowed land.

A separate, smaller field was outfitted with antennas to track the fingerlings across all three treatments to determine which they preferred. The technology is similar to FastTrak, California's automatic bridge toll payment system.

"We'll compare growth, to see what the fish liked the best," said Conrad. "About 100 have PIT (passive integrated transponder)

(Left to Right) At Knaggs Ranch project, University of California, Davis Staff Researcher **Carson Jeffres**, DWR's Environmental Scientist **Naoaki Ikemiyagi** and Program Manager II **Ted Sommer** insert a passive integrated transponder tag to monitor Chinook salmon for 42 days.

(Below) Jacob Katz of California Trout collects baby salmon for weighing, measuring, and releasing in flooded rice field.

tags inserted into the body cavity. When a fish passes an antenna in the water, we get its tag number and the time."

Conrad weighed the fingerlings at less than two grams each, or 294 per pound, and directed the drop by five-gallon buckets into the thigh-high water. Wild fingerlings were included to compare with the hatchery fish. At another location in the Yolo Bypass on Knaggs Ranch just off Interstate 5, Sommer released another 50,000 fingerlings. The last 50,000 were fed directly into the Sacramento River nearby.

For six weeks, the fish enjoyed the gentle field water movement and feasted on invertebrates and plankton. After 22 days, one fingerling weighed in at 6.4 grams, more than triple its weight.

At 42 days, the fish were plucked from the experimental floodplain and fields were drained into a channel emptying into the Sacramento River. Some of the fingerlings were recovered during field drainage and others will be collected further downstream by sampling nets along the river. Some will be collected in the ocean and taken to a Department of Fish and Wildlife Service lab in Lodi for examination of the coded wire.

"We count how many survived and how many get to the ocean. The fish reared in the floodplains will survive better, based on similar studies," Sommer predicted. "The food bank for downstream areas of the Delta has been a challenge. Here, we are learning how the floodplain can be improved for the Bay Delta Conservation Plan (BDCP) and other restoration efforts."

Peter Moyle, Associate Director for the UCD Center for Watershed Sciences, is credited as the critical to the project. He paved the way with his own studies of Cosumnes River floodplains and habitat patterns.

"The Cosumnes patterns were the same for the Yolo Bypass, mimicking the natural floodplains," Moyle found. "This can help the BDCP floodplain goals."

Jacob Katz, a UCD doctoral student in the Center of Watershed Sciences, also plays a key role in the Knaggs Ranch Project. As the director of salmon and steelhead projects at California Trout and with Cal Marsh and Farms, Katz is instrumental in connecting innovative farmers with agriculture-friendly conservation research.

"Knaggs Ranch is a primary piece of conservation and agriculture, a model for farming and fish. By flooding the fields after harvest for waterfowl and then fish habitat, we are managing these farm fields as surrogate wetlands," said Katz. "It's a win-win. This really is landowner led. The landowners have the initiative and know the bypass better than anyone else. We couldn't do it without them."

Brennan agreed, noting, "We as farmers need to do more to ensure that working landscapes are preserved and incorporate wildlife habitat where it makes sense."

I'd like to see five million fish coming out of here.

There's a lot of (fish) food out here.

—John Brennan,
Robbins Rice Management

(Left to Right) DWR Environmental Scientist **Steven Brumbaugh** pours juvenile salmon from transport tank into temporary tub. DWR Senior Environmental Scientist **Louise Conrad** and UCD Wildlife Biologist **Miranda Tilcock** weigh salmon. DWR Biologist **Steve Brumbaugh** and UCD Biologist **Nick Corline** empty cooler filled with baby salmon into a flooded rice field. Environmental Scientist **Naoaki Ikemiyagi,** Fish and Wildlife Scientific Aid **Philip Choy,** and Environmental Scientist **Lynn Takata** of DWR check control box and system to monitor salmon in fields.




A New Way

to monitor extreme precipitation events

By Michael Anderson,
State Climatologist in DWR's Hydrology Branch

Atmospheric rivers, narrow plumes of tropical moisture that can be drawn into winter storms, play a significant role in flood causing storms in California. While satellites can observe these moisture plumes as they move over oceans, they are unable to track them once they make landfall. In the next 18 months, California's ability to monitor the structure of atmospheric rivers will take a giant leap forward with the installation of four coastal atmospheric river observatories.

An atmospheric river observatory (ARO) is a combination of vertically pointing radar, atmospheric moisture sensors, and standard surface meteorology instruments (temperature, pressure, rain gauge, relative humidity). These instruments provide a detailed view of the atmosphere and can tell how much water is moving overhead during an atmospheric river event.

The four ARO installations at Eureka, Bodega Bay, Point Sur, and Goleta will complement an existing observatory operated by the United States Navy on San Nicolas Island. The data from these sites will be incorporated into weather forecasting models and will provide flood forecasters valuable information on where the atmospheric river is tracking as it comes ashore.

The AROs are part of a new extreme precipitation monitoring network being installed by a partnership between DWR, Scripps Institution of Oceanography, and the National Oceanic and Atmospheric Administration's (NOAA) Earth Systems Research Laboratory. NOAA scientists and engineers will be responsible for installing the atmospheric river observatories. Along with assisting with the funding, DWR is leading the partnership in the transition from research to operations of the technology.

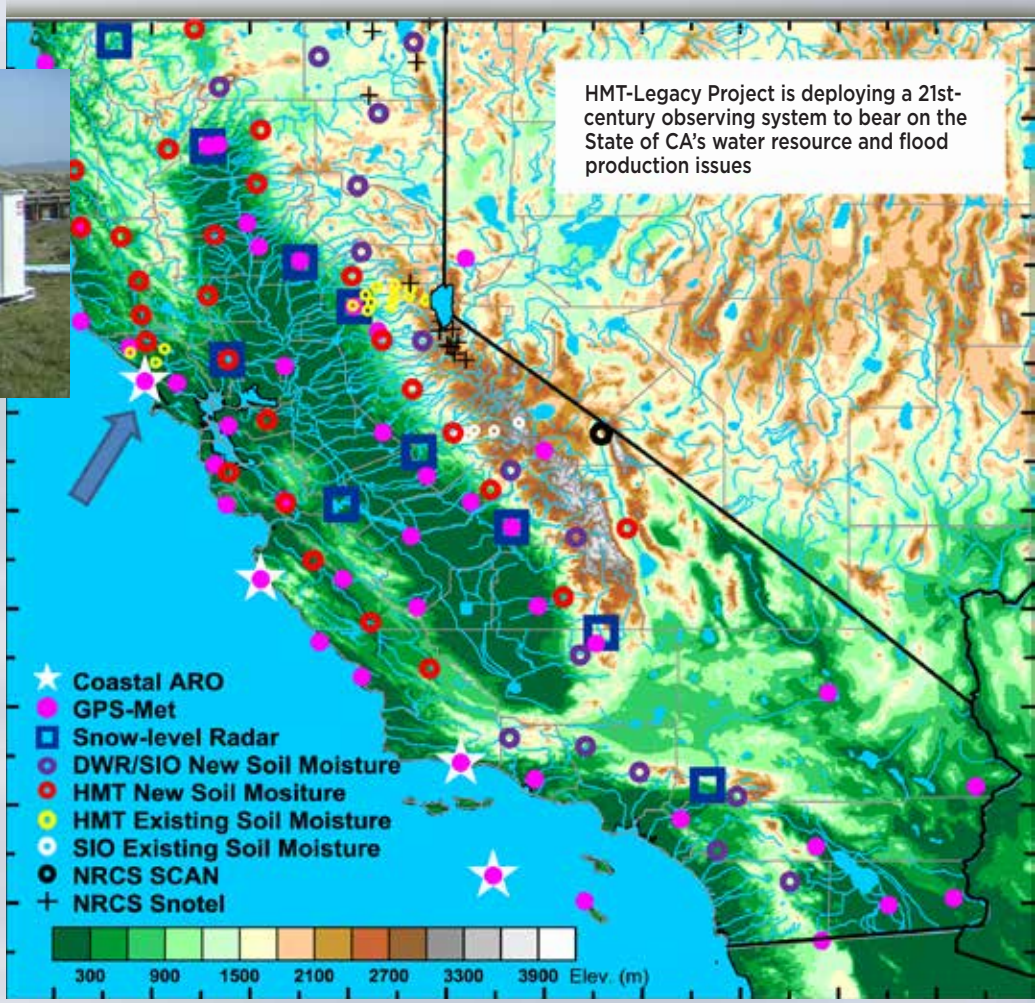
"The four coastal AROs will allow weather forecasters and other end users to detect and monitor the weather conditions in atmospheric rivers that cause extreme precipitation and flooding during the winter wet season," said Dr. Allen White, Research Meteorologist and Lead of NOAA's Observing System Science Team. "At other times of the year, the AROs will provide valuable data to detect and monitor other important features in the atmosphere including the depth and strength of the marine inversion, fire weather conditions, and local weather phenomena such as sundowner wind events."

An Expanding Observation Network

The extreme precipitation monitoring network will combine the observations from the atmospheric river observatories with freezing elevation radar, soil moisture monitoring, and atmospheric water vapor monitoring called GPS-Met.

Many of the GPS-Met sites leverage existing GPS ground stations installed to track tectonic movement in the state. With the

(Above) The backbone of the ARO is the Doppler radar wind profiler (center) that measures the strong winds aloft that carry moisture onshore during AR conditions. GPS signals received from satellites are used to calculate the amount of water vapor in the atmospheric column above the site.



HMT-Legacy Project is deploying a 21st-century observing system to bear on the State of CA's water resource and flood production issues

(Right) Of the four Atmospheric River Observatories being added by DWR, NOAA, and Scripps to the extreme precipitation monitoring network, the arrow shows the first ARO installed at the U.C. Bodega Marine Laboratory in March 2013.

addition of some meteorological instruments, the amount of water vapor can be determined based on the distortion of the GPS signal received from satellites. Forty of these sites are installed across the State.

The freezing elevation radar or snow level radar is vertically pointing radar that can determine the elevation where rain changes to snow during a storm. This information is important to determine how much of the Sierra watersheds are contributing runoff to rivers that run into the Central Valley. Twelve of these instruments are installed in major watersheds across the State.

Approximately forty sites across the state have been chosen to install soil moisture sensors. Many of these locations already have other weather monitoring instrumentation. Soil moisture has been shown to be related to the size of runoff event associated with an atmospheric river. An atmospheric river event in the fall does not produce as much runoff as one in the winter because the soils are not saturated due to the long dry summer. Once soils become saturated, runoff jumps noticeably.

Data from the instruments can be viewed at **http://hmt.noaa.gov.** Efforts are underway to also post the data on the California Data Exchange Center.

In addition to aiding flood forecasters in their monitoring of extreme events, the network will also begin to track characteristics of atmospheric rivers that may change with climate change. Recording these characteristics and their evolution will help the research community understand how extreme events are changing due to climate change.

(Left) During the ARO's installation in Bodega Bay, NOAA Scientist Dr. Clark King wires the instruments installed on the 10-meter tower to a data logger that acquires the tower measurements and sends them via cellular technology to a data hub in Boulder, Colorado, where the data and specialized data products are shared with the National Weather Service, water and emergency managers, and the public.

(Right) NOAA Engineer Tom Ayers connects instrument cable on the radar wind profiler antenna.

Changing for the better with BDCP

The Delta in Transition

Changes that will affect California's economy and quality of life are coming to the Sacramento-San Joaquin Delta.

DWR Director Mark Cowin speaks at unveiling of first four of 12 draft BDCP chapters on March 14 in state Capitol.

Earthquakes and rising sea levels are increasing threats to the Delta, its agricultural communities, and the millions who depend on it for drinking and irrigation water. And some native fish that need more naturally flowing Delta water seem to be swimming toward extinction. Human activity has caused many Delta problems, and government agencies, water districts, and others have launched an effort called the Bay Delta Conservation Plan (BDCP) to nourish habitat for fish and wildlife back to health while increasing water supply reliability for farms, businesses, and communities.

Last July, Governor Brown and Interior Secretary Ken Salazar updated reporters on the BDCP, a work-in-progress that proposes nothing less than protecting or restoring more than 100,000 acres of fish, plant and wildlife habitat, taking water for human use further upstream to restore fish-friendly natural flows in the south Delta that are now altered by powerful water export pumps, and implementing myriad other, science-monitored actions for the benefit of nature and people.

Reporters are interested and public opinion is mixed. Some don't trust that proposed water delivery tunnels would be operated to protect fish; others fear environmental restoration will take too much Delta land. But planning transparency, a commitment to science and community involvement is steadily convincing more stakeholders.

On February 12, DWR Director Mark Cowin, Department of Fish and Wildlife Director Charlton "Chuck" Bonham, and Senior Advisor to the U.S. Interior Secretary David Nawi met with reporters in the Natural Resources Building to provide further detail on the BDCP's strategy for managing water resources and protecting fish species while providing water to the cities and farms critical to the California economy. They addressed both the current Delta reality and the long-term solutions necessary for ensuring the co-equal goals of improving water supply reliability and protecting and enhancing the Delta ecosystem.

"As conditions in the Delta continue to decline, the stakes for both the Delta

California Department of Fish and Wildlife Director Charlton Bonham speaks about BDCP at press conference on March 14.

ecosystem and water users continue to grow," said Director Cowin. "The current situation is this. Over the past three months following some big storms in December and heavy outflows through the Delta, we started to take Delta smelt … at the pumps that provide for the exports for the State and federal water projects … We began to ratchet down pumping in order to provide protection for the Delta smelt … Over that period of time we estimate we have foregone about 700,000 acre-feet of pumping that could have otherwise occurred … That's enough water to provide for about 1.4 million families or households in a year.

"As we continue to manage the current situation … fish agencies have directed us to further reduce pumping for both the State and federal projects, and we expect this will result in additional restrictions in water supply," said Director Cowin. "So as we manage our way through this year as we have in past years, the really compelling thing for me is that we have no reason to expect that next year will be any different … and this conflict will continue to play out year after year until we make fundamental changes in the way we manage the Delta … and move to a comprehensive approach."

The pumping restrictions in February set the stage for sustained public attention on the BDCP through the spring. Director Cowin, Director Bonham, and others held additional press conferences in March and April to announce the public release of draft chapters of the plan, while Natural Resources Agency Deputy Secretary Gerald Meral and others responded to questions about the plan at two public meetings.

Though the official public comment period on the draft plan is not scheduled to begin until fall, leaders of the BDCP effort chose to make the chapters available several months early to give the public time to read and digest the document.

"We're here today to mark an important milestone," said Director Cowin at a March 14 press conference in the state Capitol to unveil the first four of 12 draft chapters. "After seven years of intensive planning and collaboration, we're ready to begin the roll-out of the Bay Delta Conservation Plan and to begin to engage the public on the details of that plan."

"Our goal is to be as transparent as we can while we continue to refine and finalize the Bay Delta Conservation Plan," said Director Cowin. "The plan is lengthy and complicated, and we want to provide the interested public with enough time to review it."

Director Cowin appealed to reporters to set aside the "unfortunate narrative" of the BDCP as yet another chapter in California's long-running water wars.

"Our plan isn't without controversy," he said. "No plan of this magnitude could be. But because of the effort we've put into working through tough issues, this plan enjoys an unprecedented amount of consensus between the federal and state agencies that manage fish and wildlife and the agencies that manage water."

Natural Resources Agency Deputy Director Gerald Meral responds to BDCP questions at first public meeting on March 20 in West Sacramento.

"This plan isn't about waging war," said Director Cowin. "It's about resolving some of the most critical resource conflicts in California."

State and federal officials have committed to an October 1 deadline for the release of the public review draft BDCP. On May 10, a Draft Environmental Impact Report and Environmental Impact Statement (EIR/EIS) was made available on the BDCP website at **www.baydeltaconservationplan.com**. The EIR/EIS presents an analysis of numerous alternatives and identifies a preferred alternative.

Among the proposals are three water intakes on the Sacramento River near Hood in the northern Delta feeding into twin tunnels capable of diverting 9,000 cubic feet of water per second. Habitat restoration projects would begin sooner. The plan has been developed to comply with State and federal endangered species acts.

New, northern intakes would help restore more natural east-west flows in the south Delta. The new intakes would also be located out of the primary habitat of the Delta smelt.

The BDCP rises to the scale of the challenges facing the Delta and California's economy.

As stated by DFW Director Bonham: "Water defines California, either because of its scarcity or its abundance, and these are really hard topics … For me this comes down to the fact that we're all Californians and it ought not to be about who water matters to the most as much as it should be about creating a new approach to this long-standing problem so that my son who is 15-months old, doesn't have to deal this when he matures into a young adult."

water 360

Transforming

Water Managment Solutions for a Better California

In the last decade, California has made a fundamental shift in the way water is managed. This new paradigm is Integrated Regional Water Management, and DWR has been at the forefront in making it happen.

Integrated Regional Water Management (IRWM) is the application of Integrated Water Management (IWM) on a regional scale. IWM is the principle of managing various aspects of water collectively in order to maximize public safety, environmental stewardship, and economic stability. IWM brings people together across disciplines and jurisdictions to generate multi-benefit solutions and integrate water management projects to optimize the use of public funds.

The basis for the application of IWM at a regional scale is that local governments,

our Future

agencies, and stakeholders have the best understanding of water management challenges in their region. By working together in a collaborative manner, these entities can identify and implement the best and most creative solutions.

"In Los Angeles County, complex issues like population growth, densification, traffic congestion, poor air quality, and the single-purpose missions of local agencies have presented significant challenges to water resource managers," said Mark Pestrella, Assistant Director of the County of Los Angeles Department of Public Works and chair of the Greater Los Angeles County IRWM. "Before the IRWM model was established, the numerous agencies involved in managing water within the region had very little incentive to participate in integrated planning. IRWM has defined the path to sustainable water resource management in LA County for the next 20 years through inclusive collaboration and stakeholder partnerships."

DWR's IRWM story began in 2002 when the Regional Water Management Planning Act (SB 1672) was passed by the Legislature. Bond acts approved by California voters have provided $1.5 billion to support and advance IRWM. Cities, counties, water districts, community groups, and others across the state have worked with one another to organize and establish regional water management groups (RWMGs). These RWMGs have defined 48 IRWM regions that together cover 87 percent of the state's area and 99 percent of its population.

In addition to financial assistance through the IRWM grant programs, DWR's support of RWMGs includes facilitation and technical assistance to support the practice of IRWM at the local level. Today, IRWM implementation grants have helped make approximately 300 IRWM projects a reality across the state.

Additionally, key technical support to RWMGs is provided by DWR's four Region Offices, located in Glendale, Fresno, West Sacramento, and Red Bluff. Staff at each Region Office, along with staff from DIRWM headquarters in Sacramento, is assigned to each RWMG within a Region Office's service area. Known as the IRWM Regional Service Representatives, the staff is the day-to-day contact for these groups, provides information about IRWM and other DWR programs, manages IRWM grant agreements, and is the principal contact for technical support and facilitation services.

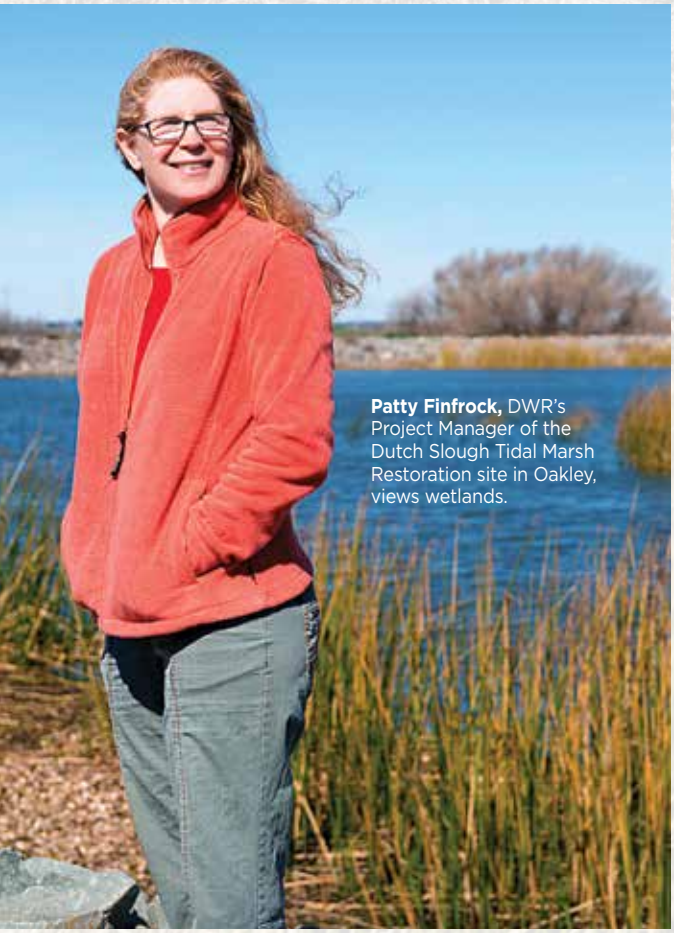
To learn more about DWR's IRWM planning efforts in California, look for an article in the next DWR Magazine featuring this highly successful program and the future it holds for California.

(Left to Right) Secretary of the Natural Resources Agency John Laird, DWR Director Mark Cowin, former DWR Director and now California Water Foundation Director Lester Snow, and Chief of DWR's Statewide Integrated Water Management Division Kamyar Guivetchi speak to approximately 250 participants **(above)** at the Integrated Water Management Summit in Sacramento on April 3.

A Living Laboratory

By Jennifer Iida

This summer, the goal of creating a working Delta habitat for recovery and species protection, is about to be realized. Here's the story . . .



Patty Finfrock, DWR's Project Manager of the Dutch Slough Tidal Marsh Restoration site in Oakley, views wetlands.

The vision was set a decade ago and now the big picture is framed up and focused. The Dutch Slough Tidal Marsh Restoration Project in Oakley, California is slated to break ground this summer and will become the largest restored fresh water tidal marsh in the Delta by the time all three phases are completed in 2020.

Covering 1,178 acres in eastern Contra Costa County, the project site is currently used as pasture. Along with the potential for restoring more than six miles of shoreline, the goal is to create a working Delta habitat for recovery and protection of species within the critical transition zone between salt water and fresh water.

"Dutch Slough was envisioned and will be built to become a living laboratory which will set the stage for hundreds of thousands of acres elsewhere," said Gail Newton, Chief of FloodSAFE Environmental Stewardship and Statewide Resources Office (FESSRO.)

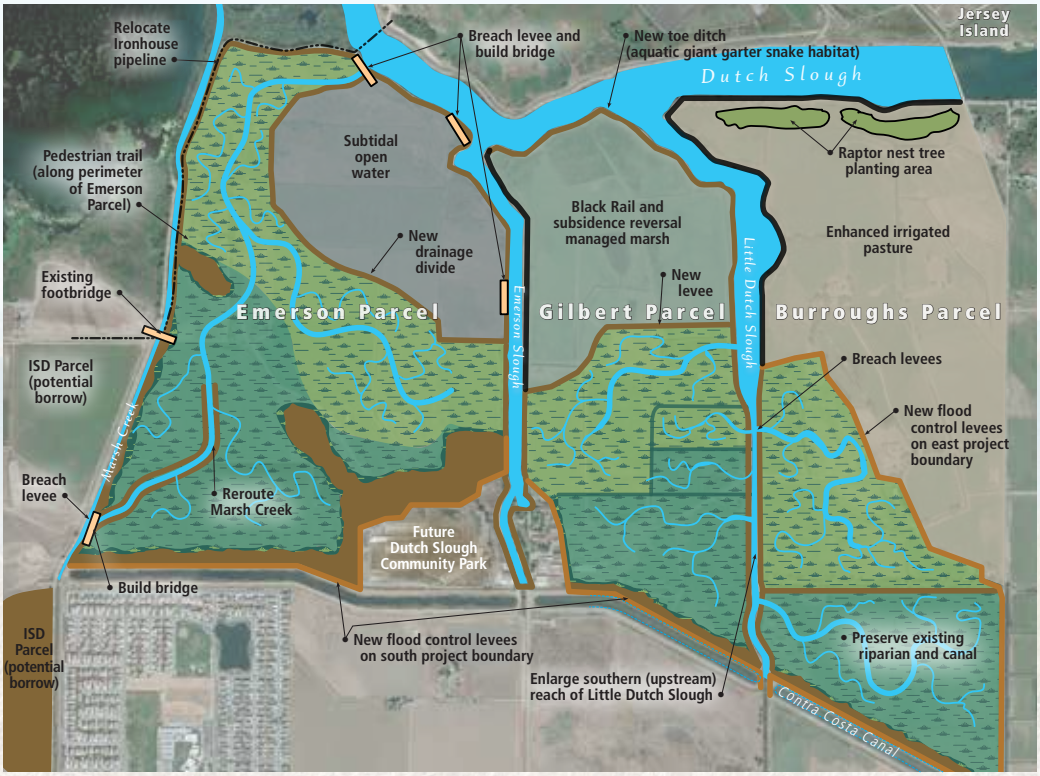
Restoring Natural Ecology

The land, originally planned for residential development by Contra Costa County, was instead purchased by the State in 2003, so that declining natural habitats of the Delta could be restored to the site.

Much of the earlier Sacramento-San Joaquin Delta was tidal marsh teeming with wildlife. Today, after over 150 years of human manipulation of landscapes and the water sources that flow into it, it is widely acknowledged that the Delta ecosystem is in crisis.

"I think people, and scientists in particular, are very interested in this project because of its location," said Ted Frink, FESSRO Environmental Program Manager. "The restored landscape will have new capacity to adapt to climate change, so as the sea level rises and translates into the

Along with the potential for restoring more than six miles of shoreline, the restorations site will create a working Delta habitat for recovery and protection of species within the critical transition zone between salt water and fresh water.



Dutch Slough Tidal Marsh Restoration: Conceptual Restoration Plan

Delta we will actually have space for tidal wetland habitat to transition. So there's a real sustainability aspect to the project."

Key Partnerships

This huge restoration undertaking is all coming together due to DWR's Project Manager Patty Finfrock's championing efforts and the partnership collaboration of the State Coastal Conservancy (SCC); California Department of Fish and Wildlife (CDFW); Ironhouse Sanitary District; Reclamation Districts 2137 and 799; the City of Oakley; and Contra Costa Water District.

"Besides restoring ecologically important Delta habitats, this project will be a local recreational enhancement because it will be open to the public with about five miles of trail, interpretive signs, and opportunities for fishing and wildlife viewing," said Finfrock.

Funding

The project also meets the Delta Levees Program's legislative mandate for net habitat improvement. CALFED Ecosystem Restoration Program and SCC provided the funds to purchase the property and to do the initial planning, including a conceptual restoration plan, feasibility study, and the Environmental Impact Report (EIR).

The final planning and implementation is being paid for by DWR, SCC, CDFW, U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service, with a cost of nearly 40 million dollars. DWR contributed about $16 million of Propositions 84 and 1E bond money.

DWR finalized the EIR in March 2010. With a supplemental EIR being released soon, all permits are expected to be approved by March 2014.

"Because it is purely habitat enhancement that drives this project, rather than compensatory mitigation, there are fewer regulatory requirements driving the design," said Newton. "This gives us flexibility to do what we, and other experts, think need to be done to restore this transitional marsh."

As the largest inland estuary on the west coast, the Sacramento-San Joaquin Delta is unique. Dutch Slough is located at the western edge of this Delta, providing us with an opportunity to restore a marsh in a unique hydrologic and ecological situation.

Benefits

"When restored, the project will create about 560 acres of tidal marsh," said Finfrock. "A tidal marsh is an area with vegetation that has most of its growing area above the water surface, like cattails or tules, and which is inundated daily with the tides. Because of the interactions between terrestrial and aquatic habitats, tidal marshes are very rich biologically."

Covering 1,178 acres in eastern Contra Costa County, the Dutch Slough Tidal Marsh Restoration site is currently used as pasture.

We're hoping other entities will step forward with an interest in supporting or conducting research here.

Ted Frink, FESSRO Environmental Program Manager

Hundreds of thousands of acres of Delta wetlands have disappeared over time and the native fish species that depend on these habitats have declined in numbers due to this loss of habitat and other water-related factors. Fish of special concern that will benefit from restored Delta tidal wetlands include Chinook salmon, Sacramento splittail, and Delta smelt.

Another benefit of restoring Dutch Slough includes the realignment of nearby Marsh Creek to provide a tidal floodplain that supports growth of juvenile salmonids. Rebuilding these fish populations may help ease restrictions on water management in the Sacramento-San Joaquin Delta.

According to Finfrock, DWR will also create about 30 acres of riparian habitat by planting shrubs and trees adjacent to the tidal channels and open water areas in and around the project. Riparian habitats are also very important for native Delta species that are in decline, especially birds and fish.

Forward Motion

Restoration will start at the western parcel of land and move its way east as earthwork on the previous parcel is completed. This scale of restoration will be important for researchers to learn more about how new wetland habitat evolves, tidal channels form, and how this habitat benefits native birds, fish, and primary production in the Delta food web.

"It's a step by step process, and with each project comes a unique set of concerns," said Newton. "It's not an exact science since people have been only researching restoration issues for about 30 years. So there's a lot to figure out. It takes the right project manager, like Patty, with persistence to do what it takes against all odds."

Frank added "DWR plans to maintain the project when the enhancement is completed, yet it is still unknown who will take the ball and manage the research and studies after the restoration phases are complete."

"In the meantime, we're hoping other entities will step forward with an interest in supporting or conducting research here."

"It's very exciting," said Finfrock. "It's a biologist's dream job to be managing a tidal marsh restoration of this scale!"

For more information on the Dutch Slough Tidal Marsh Restoration Project go to: ***www.water.ca.gov/floodsafe/fessro/environmental/dee/dutch.cfm***

(Right) Levees will be breached to convert Dutch Slough's northern project area near Mount Diablo from grassland grazed by cattle back to tidal marsh and riparian forest, benefitting native fish and wildlife.

Flying High

with America's National Symbol– at Lake Oroville

by Christina Jimenez

One of America's proudest symbols—the once nearly-extinct bald eagle—is increasing in numbers at Lake Oroville under the watchful eye of DWR and other environmental stewards.

DWR has counted bald eagles in the Oroville area since 2003.

And the count has been going up—from 34 eagles when DWR began the surveys in 2003, to an average of 76 over the last three years.

The one-day survey required at least every two years by the U.S. Fish and Wildlife Service is part of the Oroville Facilities licensing project. DWR tries to conduct the count every year.

"As the property owner of the Oroville project area, DWR has a stewardship role to protect its natural environment," said Ryan Martin, Oroville Field Division's (OFD) lead eagle surveyor. He has worked at DWR for 13 years and has managed the mid-winter eagle survey since 2003. "DWR's Operations and Maintenance Division is generally associated with our power plants, water delivery system, and providing flood control, so it is important to also highlight this type of environmental monitoring and conservation work."

The eagle count is part of the national, mid-winter survey which in California is coordinated by the Corps of Engineers. DWR employees, with their binoculars and notebooks in hand, cover more than 40,000 acres by foot, boat, and truck in search of our national symbol.

Getting the Big Picture

During the eagle counts, DWR environmental scientists monitor far-away and fast-moving bald eagles.

Eagle photos by Ryan Martin

(Above) Sub-adult Bald eagle (4th year bird) at Middle Fork of Lake Oroville.

"What's most interesting about the mid-winter surveys is that we are able to document such a large concentration of wintering eagles at Lake Oroville," said Martin, a Staff Environmental Scientist with DWR's OFD since 2008. "When we first initiated these surveys in 2003, we counted 34 eagles. Then in 2007, we counted just over 50. Our last three years have averaged 76 bald eagles, with our highest

count of over 80 bald eagles during the January 2009 survey."

According to DWR Staff Environmental Scientist Mike Bradbury, the importance of the program is how it meshes with counts being completed nationwide.

"It provides a big picture of the health of the species, and can identify serious health issues for both the birds and for humans, such as when DDT—an insecticide—was found to be detrimental to the environment," said Bradbury. "DDT is believed to be one of the reasons the bald eagle was on the brink of extinction in the late 20th century."

With its population increase, the bald eagle has been removed from the federal list of threatened and endangered wildlife.

"Because I've been involved since the survey began, I'm able to ensure that the survey is done consistently from year to year, to ensure our data is comparable," said Bradbury, who has participated as a Lake Oroville eagle surveyor for seven of his 21 years with DWR.

The Bird Experts

Traveling by boat and vehicle, the three survey crews consisting of Environmental Scientists from four DWR locations utilize their knowledge about birds.

"These surveys are a collaborative process," said Martin. "We have a lot of different folks involved, and that is an important aspect of this program."

The two boat crews include four team members: one boat driver, one recorder, and two observers. The vehicle crew normally consists of one to two employees. Unlike the past methods of paper maps and handheld global positioning system (GPS), the team now also has the ability to enter their observations directly into a geographic information system database on a field laptop with GPS.

This year's 2013 mid-winter bald eagle survey crew included a mix of DWR technical experts. The first boat crew covering the North Fork and West Branch of Lake Oroville included Adam Henderson of Northern Region Office, Ron Melcer of FloodSAFE Environmental Stewardship and Resources Office (FESSRO), and Mike Bradbury and Danika Tsao of the Division of Environmental Services (DES).

"The eagle surveys are consistently some of my favorite days on the job," said Staff Environmental Scientist Adam Henderson, who has been part of the eagle surveys since they began. "I never get tired of watching these magnificent birds and when you see so many of them in one place, it really does take your breath away. The recovery of the bald eagle is an endangered species success story and it feels like you are witnessing that recovery first hand on these surveys."

Henderson, who has worked with DWR for more than 12 years, joined the crew as the boat driver and later became co-leader of the team covering the North Fork and West Branch of Lake Oroville.

Like the rewarding aspects of the job, there is always the challenging side.

"It's always very cold out and we are in

(Left) Adult bald eagle at North Fork of Lake Oroville.
(Below) Staff Environmental Scientist **Ryan Martin** (left) and Environmental Scientist **Robin Carter** of the Oroville Field Division survey for eagles in the Oroville Wildlife area.

DDT is believed to be **one of the reasons** the bald eagle was on the brink of extinction in the late 20th century.

—Mike Bradbury,
Staff Environmental Scientist

The recovery of the bald eagle is an **endangered species success story** and it feels like you are witnessing that recovery first hand...

—Adam Henderson, *Staff Environmental Scientist*

a big aluminum boat in the middle of the lake," said Martin. "It's often one of the coldest surveys we do."

Covering the South Fork and Middle Fork Branch of Lake Oroville by boat are Environmental Scientists Ryan Martin, Robin Carter, Sabrina Bell, and Julie Brown, all from the License Coordination Branch at OFD, and Gail Kuenster an Environmental Program Manager with DES.

Dave Bogener, an Environmental Program Manager with DWR's Northern Region, travels by vehicle to do the eagle-count at the Thermalito Complex (Diversion Pool, Forebay, Afterbay), and the Oroville Wildlife Area.

"The mid-winter bald eagle survey serves to document the recovery of the species and provides data to allow future State delisting," said Bogener.

Bogener, another major player in the eagle surveys since 2003, has worked with DWR for 32 years and first became involved with surveying eagles in 1979 while employed by the U.S. Forest Service as a wildlife biologist for the Shasta Lake Ranger District.

"Many of these Environmental Scientists working in other branches are brought to assist because of their expertise with wildlife surveys," said Martin. "Specifically, Mike Bradbury and Adam Henderson have led the North Fork survey crew in all years the survey was completed."

Other DWR Environmental Scientists assisting in recent years include Amy Lyons, Jessica Boyt, Pete Coombe, and Scott McReynolds with DWR's Northern Region Office and Nicole Darby with DES.

"After seven years of working on the mid-winter bald eagle surveys, my institutional knowledge helps make the survey more efficient and safer," said Henderson. "Many of the core team members have worked together for years, and as part of the team we get to help the surveys get better every year."

Eagle Nesting Surveys

Along with the mid-winter bald eagle surveys, Oroville Field Division also coordinates eagle nesting surveys.

The four-to-five day surveys, which generally take up to six months to complete, also begin in January with one crew of two people traveling by boat and truck to cover the project area. The crew searches for eagle nest territories across Lake Oroville using the same tools as the mid-winter surveys, in addition to a spotting scope with a tripod to locate the nests.

"If a nest is found, it is our duty to manage those territories, and protect those areas," said Martin, also lead for the eagle nesting survey. "We work with land managers in the area to notify them of these sensitive areas. As an example we coordinate with the State Department of Parks and Recreation for one of our territories to implement a seasonal trail closure to limit disturbance near the nest."

From February to July, these protection measures generally last between three to four months, allowing the eagle chicks to leave the nest. DWR's nesting survey from 2002 to 2012 has observed an estimated 49 eaglets fledging from nest territories in DWR's Oroville Project Area.

The nest monitoring data is annually reported to the U.S. Fish and Wildlife Service and shared with the Department of Fish and Wildlife's California Natural Diversity Database.

(Above) Bald eagle pair in nest tree at Crystal Hill Territory in the Middle Fork of Lake Oroville.

Snow Surveys take to the Air

Monthly manual snow surveys **(left)** and aerial snow surveys **(above)** can provide a better estimate of California's water supply.

(Left to Right) Scientist Tom Painter and ASO Mission Manager Cate Heneghan of NASA's Jet Propulsion Laboratory with Chief of the California Cooperative Snow Surveys Frank Gehrke **(center)** of DWR inside airborne laboratory. Gehrke prepares to board plane for weekly flight over the upper Tuolumne River basin to take snow depth and reflected sunlight readings. Plane is equipped with multispectral imager to measure snowpack reflectivity.

For a broader view of California's snowpack, DWR and NASA's Jet Propulsion Laboratory (JPL) took to the sky in April to conduct aerial snow surveys of the Sierra Nevada.

"The Airborne Snow Observatory is providing California water managers the first near-real-time, comprehensive determination of basin-wide snow water equivalent," said Frank Gehrke, Chief of the California Cooperative Snow Surveys Program for DWR. "Integrated into models, these data will enhance the state's reservoir operations, permitting more efficient flood control, water supply management and hydroelectric power generation."

This pilot project is a three-year partnership between DWR and NASA's Jet Propulsion Laboratory, based in Pasadena.

"Changes in and pressure on snowmelt-dependent water systems are motivating water managers, governments and others to improve understanding of snow and its melt," said Tom Painter of NASA. "The western United States and other regions face significant water resource challenges because of population growth and faster melt and runoff of snowpacks caused by climate change. NASA's Airborne Snow Observatory combines the best available technologies to provide precise, timely information for assessing snowpack volume and melt."

Known as the cutting edge of snow remote-sensing science, this observatory has created the first maps of the entire snowpack of a major watershed in California.

Aerial surveys conducted weekly through snowmelt season began in the Tuolumne River Basin, located in California's Sierra Nevada, a source of San Francisco's water. The Twin Otter plane is equipped with Lidar technology which measures snowpack depth, and a multispectral imager which measures snowpack reflectivity. Combined with data from the traditional manual snow surveys and electronic sensors, this information gathered from above can provide a better estimate of California's water supply.

According to Gehrke, DWR will continue to conduct monthly manual surveys and maintain the automated snow sensors. Ground surveys are conducted from January through May.

"The snow surveys are relatively inexpensive, and provide the snow density measurements that are necessary to compute snow water equivalent from the LIDAR determined snow depth" said Gehrke.

Briefing

Oroville Dam Overlook gets a Facelift

A popular "vista point" during the construction of Oroville Dam, the recently renovated Oroville Dam Upper Overlook provides a dramatic view of the tallest and one of the largest dams in the United States.

"Visitors can again take in these panoramic views," said Matt Murray, an Engineer with Oroville Field Division (OFD). "Around the new overlook site and surrounding area, 17 acres are being cleared of hazardous wildfire fuels."

Both projects were highlighted during Settlement Agreement negotiations for the Federal Energy Regulatory Commission's relicensing of the Oroville Hydropower Facilities.These projects aim to enhance the Oroville facilities and local community.

With the completion of several improvements and new features, the Oroville Dam Upper Overlook reopened in April as DWR marks the 45th anniversary of Oroville Dam.

"The overlook was never closed to the public, but we restricted parking in the area due to loitering concerns," said Murray. "Additionally, as the trees and shrubs continued to grow around the site, the view had been reduced significantly."

After September 2001, DWR in cooperation with the Federal Department of Homeland Security closed public parking on the mile-long dam crest and western abutment for security reasons. This new parking restriction severely reduced the available parking at the dam. This improved overlook site was identified as the best alternative for replacement parking.

(Left to Right) Alyssa Stutz and Matt Murray of Oroville Field Division inspecting Oroville Dam's renovated overlook.

Located 50 feet above the dam at Canyon Drive and Royal Oaks Drive, the site includes a new ramada, a 165,000-pound impeller from the Hyatt Powerplant beneath Oroville Dam, interpretive signs, handrails, picnic tables, and landscaping. The parking area was expanded to 25 vehicle spaces by adjustment of temporary traffic barriers. Plans call for 100 total parking spaces in the future.

The project design and grant approval phase began in 2007, and construction started in April 2012.

Chuck Saiz and Danny Macias of

(Left to Right) Utility Craftsworkers Lisa Melton and Monte Reyes preparing the grounds for concrete work while Civil Maintenance Supervisor Chuck Saiz inspects their work.

(Below) With the removal of six acres of wildfire fuels, the Fuel Load Management Plan has enhanced the view from the Oroville Dam Upper Overlook.

OFD Civil Maintenance were heavily involved in the success of the project. "It is nice to be able to show the public what we can do," said Chuck Saiz, Oroville Field Division's Civil Maintenance Supervisor. "Most of our work goes unnoticed to the public eye."

Management of Wildfire Fuels

With six of the 17 acres cleared of wildfire fuels, the Fuel Load Management Program is also enhancing the overlook's view with removal of brush and other wildfire fuels.

The Fuel Load Management Plan (FLMP) was developed as part of the Settlement Agreement for licensing of the Oroville Facilities and identifies ten zones to prioritize for treatment. DWR has begun implementing the FLMP on lands surrounding the lake. This is the first plan of its kind for Oroville Field Division.

"One of the areas identified was the east side of Canyon Drive near Oroville Dam," said Alyssa Stutz, an Engineer with OFD. "That plan is now final and DWR is implementing the first of many treatments. This area was identified as one of the highest in priority due to the relative location of nearby housing."

Implemented in November 2012, DWR's FLMP includes a variety of reduction methods and aims to have 2,900 acres completed by 2025.

"In this case, thinning, chipping, and multi-cutting are the best methods, but it is quite labor intensive," said Stutz. "The chipped material is spread throughout the zone."

DWR was directing the California Conservation Corps on the first six acres of work, but anticipates working with other agencies, such as CAL FIRE, on other projects associated with fuel load reduction.

Both the Oroville Dam Overlook and the Fuel Load Management Plan are meeting regulatory requirements for the operation of Oroville's State Water Project facilities.

"Many people who live in the Kelly Ridge area are looking forward to having both projects completed," said Murray.

Inspiring a Love for Science and Engineering

To showcase science and engineering projects from middle and high school students in the greater Sacramento region, the 2013 Sacramento Regional Science and Engineering Fair was held on March 9 at Rosemont High School.

DWR presented two awards for Best Science or Engineering Project Supporting Water Management, one in the Junior Category (6th to 8th grade), and one in the Senior Category (9th to 12th grade). The criteria for judging the 374 projects representing the work of 500 students from 11 counties were relevance to water management, originality in design, and adherence to scientific method.

DWR's nine special award judges also rated the students' projects, oral presentations, and subject knowledge.

"Every year, more and more DWR professionals are interested in assisting with the DWR Special Award," said Michelle Robinson, DWR Education Specialist and DWR Judge Coordinator. "I hope the interest keeps growing so we can eventually expand our participation to other regional science fairs throughout the state."

The Experiments

The DWR special award winner in the junior category went to a talented team of 8th grade triplets from Our Lady of Assumption in Carmichael for their project on "Water Evaporation Suppression; Messing with Mother Nature."

After viewing a global water shortage documentary, Maile, Cal, and Jared Shelley decided to research water storage problems. They captured their project in a time-lapse video.

"Our initial project was to see what type of water evaporates the fastest: rain water, river water, soft water, tap water," said Maile. "Then, we had to see the rate they evaporated in, and we learned that the water all evaporated at the same rate, but the minerals stayed in the water."

According to Cal, they wanted to take that to the next level and to stop the evaporation process. They found modular covers worked best to suppress evaporation.

"Since the water surface areas were covered, there's only a small amount of water that can evaporate," said Jared. "We were very happy when we figured out the covers worked the best because they can be made cheaply and you can float them all over the surface while fish can still come up to get food and birds can come in and get fish."

Esha Lal of Granite Bay High School took first place in the senior special awards category with her project, "Hatching and Growth of Brine Shrimp in Water from Folsom Lake."

Esha decided to use brine shrimp because they are at the bottom of the food chain, and if something was causing them to die it might in turn cause other organisms to die.

"I found the pH as well as the alkalinity from Folsom Lake was actually higher than distilled water and is one of the factors that have shown to promote and induce growth of brine shrimp," said Esha. "The higher the pH the better they are able to survive."

Esha plans to compete again next year because she loves to investigate and unravel the mysteries of chemistry and science.

The DWR special awards consist of a certificate, statewide recognition in DWR magazine, and a National Weather Service rain gauge. Winners of the overall competition go on to Phoenix for a global competition at the 2013 Intel International Science and Engineering Fair in May.

"It's fascinating to see how early in their lives the students are able to think and apply the science and engineering minds," said Jag Nagendra, DWR Senior Control Engineer.

(Left to Right) DWR's Science and Engineering Fair volunteers. Junior Category winners Maile, Jared, and Cal Shelley. Senior Category winner Esha Lal.

Becoming Sustainable

Green Pastures Reuse Room

As part of our commitment to sustainability, DWR employees are finding ways to reuse everything from office supplies to water storage tanks.

In January 2013, DWR launched an office materials reuse program, open to all DWR employees. The Green Pastures Reuse room offers gently-used or surplus materials that can be claimed at no cost to your office.

"When DWR personnel clean out their work areas during office clean up events or moves, the hallways become littered with dumpsters full of slightly-used binders, tape dispensers, file organizers, pens, pencils, and many other office supplies that still have a lot of use left to them," said Nate Frank of DWR's Capital Outlay and Sustainable Business Practices Section. "With the reuse room, these useful items are not destined for a landfill and have a place to go. We capture these office products for reuse."

Open Monday through Friday from 8 a.m. to 12 noon, there are no lines in the reuse room located in room 355 of the Natural Resources Building. Simply walk in and find what you need. It is asked only that items taken are recorded, so reuse efforts can be documented.

"In addition to demonstrating the Department's commitment to sustainability, this program will reduce DWR's ecological impact (bringing it closer to carbon-neutrality), conserve funds for more important endeavors, and satisfy the growing demand within the Department to become more conscious about resource consumption," said Frank.

Drop offs are currently not being accepted, but if you have new or gently-used supplies that you feel could be contributed, please email the DWR Green Team at **DWR_Green_Team@water.ca.gov** or call 653-6561.

Fuel Reduction with Water Tanks

DWR's San Luis Field Division is reducing its fuel needs with gently-used 3,000 gallon potable water storage tanks previously used in a zebra mussel research project.

"These new tanks are saving fuel costs, since staff does not have to drive back to the yard for water," said Bill Haywood, Utility Craftsworker Supervisor at San Luis Field Division.

DWR is saving by not having to dispose of the tanks or having to purchase extra water tanks to save fuel.

During the summer and fall of 2011, the tanks were previously used by the Operations and Maintenance Aquatic Nuisance Species (ANS) Program at San Justo Reservoir, which is invaded with zebra mussels. They were delivered in January of 2013 to San Luis Field Division as a remote water storage supply used for their pre- and post-emergent herbicides.

If your unit is replacing furniture or equipment, it may be useful to another unit within DWR. For more information, visit **http://aquanet.water.ca.gov/facilities/property.cfm**

(Left) Bill Haywood with tanks delivered to San Luis Field Division.

People

New Hires

John Ahrens
Delta Field Division
Electrical-Mechanical Testing Technician I

Jessica Alarcon
Flood Management
Staff Services Manager I

David Beasley
Operations & Maintenance
Heavy Equipment Mechanic

Shannon Becker
Oroville Field Division
HEP* Operator Apprentice

Kyle Bickler
Flood Management
Engineer

Kaci Boyd
Engineering
Associate Governmental Program Analyst

Lloyd Boyer
Oroville Field Division
HEP* Mechanic Apprentice

Carmel Brown
Executive
Senior Engineer

Jason Calderon
San Luis Field Division
HEP* Operator Apprentice

Seema Chowdhury
Engineering
Junior Engineering Technician

Philip Clark
Southern Field Division
Building Maintenance Worker

James Crosby
Southern Field Division
Building Maintenance Worker

Donald Crothers
Operations & Maintenance
Electrical Engineer

Dustin Eggleston
Oroville Field Division
HEP* Mechanic Apprentice

Terri Ely
State Water Project Analysis Office
Staff Environmental Scientist

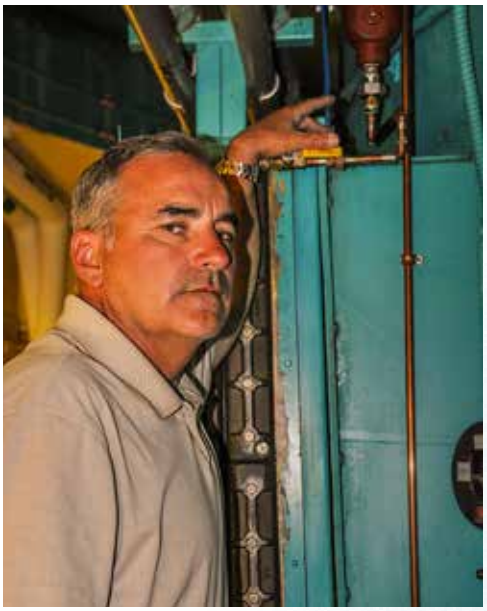
Luis Enriquez
Operations & Maintenance
Electrical Engineer

Amapola Francisco
Fiscal Services
Accountant Trainee

Susan Greene
IRWM***
Associate Governmental Program Analyst

*Hydroelectric Plant
*** Integrated Regional Water Management

Employee Suggestion Awards



Preventing Water Leaks

DWR Mechanic wins award for installing air releases at pumping plant

Hydroelectric Plant Mechanic II Glenn Ward of Southern Field Division received an Improved Procedure Award for his suggestion to install individual air releases on each radiator at Pearblossom Pumping Plant.

"We encountered a pinhole leak on the air release piping line, which in turn sprayed water directly into the motor and incoming electrical connections," said Ward. "The piping was original, which made me realize that we would have to make changes in the system to prevent this potential from happening again."

Although repairs were of minimal cost to DWR because the unit was not on line, Ward knew there was potential for a costly repair, rewinding, or motor replacement.

"By installing air releases on each radiator below the level of the air intake with a drain from each air release, water is diverted to a floor drain directly below each radiator," said Ward. "Since this system was installed in 2010, there have been no failures."

Detecting Oil Leaks

Southern Field Division employees awarded for improving leak detection system

Hydroelectric Plant Mechanic II Glenn Ward and Electrical and Mechanical Testing Technician II Dan Clark received an Improved Procedure award for improving the original Discharge Valve Leak Detection System that detects oil leaks in the event of a discharge valve seat failure at Pearblossom Pumping Plant.

"After being challenged to find a solution to prevent unnoticed excessive oil flows from escaping the discharge valve hydraulic system, Dan and I brainstormed and developed some minor changes to the existing system," said Ward.

The hydraulic pressure continuously pushed against the o-ring at operating pressures in excess of 475 pounds per square inch. When the o-ring failed, all the operating oil would migrate into the discharge line, which could result in unit shutdown and, if undetected, massive oil spill into the California Aqueduct.

To resolve this issue, an additional multi-ported solenoid operated hydraulic valve circuit was added to the systems operation. The new hydraulic circuit detects when an o-ring fails, and it alarms the local control panel and plant operation control desk. Since it has been installed in 2005 at Pearblossom, there have been no reportable oil spills.

Information about the State's Employee Suggestion Program can be found at **www.calhr.ca.gov**. The Merit Award Program is located on the home page under "Popular Links," or by contacting DWR's Merit Award Administrator at **Victoria.Whipkey@water.ca.gov**

Safety Leads the Way

Meet New Chief Safety Officer Mike Donlon

As the leader in the implementation of a world-class safety system for DWR, Michael Donlon, the newly appointed Chief Safety Officer since April, is tasked with the vital role of proactively protecting DWR's 3,280 employees statewide.

"DWR is a unique state agency when it comes to safety," said Mike. "We have such a varied workforce, with our employees facing a wide array of hazards day after day. My job is to implement our current safety plan, so DWR will have a world-class safety system."

With more than 23 years of safety expertise, Mike has spent the past 16 years with the California Department of Industrial Relations' Division of Occupational Safety and Health (Cal/OSHA). He specialized in enforcement, safety training, and the development of Title 8 Safety orders.

Prior to his career with Cal/OSHA, Mike worked with the United States Air Force and Occupational Safety and Health Standards Board in a variety of safety engineer roles.

Mike has also spent the past 12 years educating college students in Occupational Safety as a lecturer at the University of California, Davis and six years at California State University, Sacramento. He also holds credentials as a Certified Safety Professional, a registered Professional Safety Engineer, and a licensed electrical contractor.

"I am excited about management's commitment to building a world-class safety program," said Mike. "They truly care about the DWR family and want to keep them safe."

Mike, a native of Oakland, graduated in 1989 from California State University, Chico, where he earned a Bachelor's of Science degree in Mechanical Engineering.

Mike enjoys boating in the Delta and working on his classic cars, which he exhibits at car shows.

California Department of Water Resources

New Hires

Gary Hage
San Joaquin Field Division
Building Maintenance Worker

Angela Hall
Engineering
Engineer

Cynthia Hawes
Engineering
Associate Governmental Program Analyst

Joriea Hayes
Fiscal Services
Staff Services Analyst

Marissa Hernandez
Flood Management
Office Technician (Typing)

Melanie Holman
Engineering
Office Assistant (Typing)

Hannah Johnson
Operations & Maintenance
Electrical Engineer

Kayla Kopel
Fiscal Services
Accountant Trainee

Margaret Kress
Environmental Services
Environmental Planner (Arch.)

Lisa Lee
Executive
Environmental Scientist

Maria Lee-Beason
Human Resources Office
Associate Personnel Analyst

Meeyoung Lim
IRWM***—Southern Region
Office Technician (Typing)

Timothy Lindquester
Business Services Office
Office Technician (Typing)

Anthony Locke
Fiscal Services
Office Technician (Typing)

Delia McGrath
Flood Management
Senior Engineer

Hany Michael
Engineering
Engineer

Nathan Millingar
IRWM***—Northern Region
Engineer

Nicholas Morgan
Southern Field Division
HEP* Electrician Apprentice

Heather Myrum
Fiscal Services
Office Technician (Typing)

*Hydroelectric Plant
*** Integrated Regional Water Management

New Hires

Verena Ortiz
State Water Project Analysis Office
Office Technician (Typing)

Jeremy Orvis
Southern Field Division
Electrical-Mechanical Testing Technician I

Edgar Padilla
San Joaquin Field Division
HEP* Operator Apprentice

Kenneth Petersen
Delta Field Division
HEP* Operator Apprentice

Kattie Pham
State Water Project Analysis Office
Office Technician (Typing)

Tanya Potter
Flood Management
Office Technician (Typing)

John Preston
Engineering
Engineer

John Rea
Delta Field Division
HEP* Mechanic Apprentice

Joseph Saenz
Engineering
Junior Engineering Technician

David Salomon
Delta Field Division
HEP* Electrician I

Sean Savigar
Southern Field Division
HEP* Mechanic Apprentice

Lisa Sawyer
IRWM***—North Central Region
Environmental Scientist

Catherine Small
Technology Services
Senior Information Systems Analyst

Melissa Sparks
IRWM***
Environmental Scientist

Elizabeth Suarez
Human Resources Office
Personnel Specialist

John Ulrich
San Joaquin Field Division
HEP* Electrician I

Olivia Virgadamo
Executive
Senior Engineer

Cindi Vonschoech
Engineering
Staff Services Analyst

*Hydroelectric Plant
***Integrated Regional Water Management

Twenty-Five Years of Service

Craig Baillie
Technology Services
Staff Information Systems Analyst
May 2013

Mary Ann Benny-Sung
Engineering
Staff Services Manager II
March 2013

Robert Estrada
Delta Field Division
Utility Craftsworker
April 2013

Jain Fong
California Energy Resources Scheduling
Supervising Hydroelectric Power Utility Engineer
May 2013

Richard Jones
Southern Field Division
Hydroelectric Plant Mechanical Supervisor
March 2013

Frank Martinez
Southern Field Division
Utility Craftsworker
March 2013

John Moe
Oroville Field Division
Utility Craftsworker Superintendent
April 2013

Roy Ramirez
San Joaquin Field Division
Hydroelectric Plant Mechanic
April 2013

Matthew Reeve
Bay-Delta Office
Program Manager II
January 2013

Rita Sanko
Fiscal Services
Deputy Comptroller
May 2013

Doug Thompson
Operations and Maintenance
Delta Field Division
Hydroelectric Plant Operations Superintendent
March 2013

Michael Whitten
California Energy Resources Scheduling
Staff Information Systems Analyst
May 2013

Frank York
Southern Field Division
Utility Craftsworker
April 2013

No photo available

Stephen Wong
Business Services Office
Digital Print Operator II
May 2013

CONGRATULATIONS

… to DWR's Newest Parent:

Eli Ateljevich, an Engineer, with the Bay Delta Office, has a daughter named **Emanuela,** who was born on October 30, 2012 weighing 8 pounds, 7 ounces and measuring 20 inches long.

Retirements

Reza Zamanian

Throughout his 34-year State career as an engineer, Reza Zamanian enjoyed challenges ranging from designing bridges and aqueducts to scheduling water deliveries.

"I enjoyed working on the designs of high-pressure steel pipes, reinforced concrete pipe, pre-stressed concrete pipe, pre-cast concrete pipe, hydraulic structures, reinforced concrete structures," said Reza Zamanian, Senior Engineer who retired in April.

Reza's State career began atthe California Department of Transportation, where he was involved in feasibility and planning studies, preliminary structure estimates, and structural detailing and layout for bridges. In 1986, he joined DWR's Division of Engineering. For 12 years, he was responsible for the design of major portions of the California Aqueduct, Pearblossom Pumping Plant, Devil Canyon Penstock, Mojave Siphon 2nd Pipeline, Mojave Siphon Powerplant Coastal Branch Phase II, and East Branch Enlargement, including the Nine Circular Siphons.

Reza received a Certificate of Appreciation from Director David Kennedy in 1998 for his exceptional service and outstanding contributions associated with the design and construction of the Coastal Branch Phase II Project.

While with DWR's State Water Project Analysis Office from 1998 until retirement, he worked on the development and negotiation of water contracts for conveyance, storage, and delivery of water using State Water Project facilities. He became Senior Engineer managing the Water Deliveries Section in 2010.

New Hires

Mary Wells
Engineering
Office Technician (Typing)

Evon Willhoff
IRWM***
Environmental Scientist

Retirements

Carol Birch
IRWM***
Associate Governmental Program Analyst

Meihuei Chang
Technology Services
Staff Information Systems Analyst

John Headlee
IRWM***—North Central Region
Engineer

Lino Hernandez
Engineering
Architectural Designer

Negah Khodamardi
Statewide Integrated Water Management
Senior Engineer

Richard Kunz
Southern Field Division
HEP* Operator

Mark Meeks
Operations & Maintenance
Principal Engineer

Mike Mirmazaheri
FESSRO****
Supervising Engineer

Douglas Najima
Engineering
Water Resources Engineering Associate

John Stephens
IRWM***—North Central Region
Supervising Engineer

Bobby Walker
San Luis Field Division
Utility Craftsworker

Maria Zamora
Southern Field Division
HEP* Operator

*Hydroelectric Plant
** Hydroelectric Power
*** Integrated Regional Water Management
**** FLOODSAFE Environmental Stewardship and Statewide Resources Office

Promotions

Abiodun Aderonmu
IRWM***—Southern Region
Senior Engineer

John Amabile
San Luis Field Division
HEP* Electrician I

Manuel Areia Jr.
San Luis Field Division
HEP* Operator

Todd Bernardy
Flood Management
Supervising Engineer

Mark Bettencourt
Environmental Services
Staff Environmental Scientist

Amarjot Bindra
Flood Management
Supervising Engineer

Robin Brewer
Executive
Assistant Chief Counsel

Arthur Carlton
Engineering
Senior Engineer

Kevin Clark
Bay-Delta Office
Senior Environmental Scientist

Rachel Corbett
Fiscal Services
Accounting Administrator I (Supv.)

Fabricio Cordero
State Water Project Analysis Office
Senior HEP** Utility Engineer

Valerie Cox
State Water Project Power & Risk Office
Associate Governmental Program Analyst

Gina Craig
Human Resources Office
Executive Secretary I

Theodore Daum
IRWM***
Staff Environmental Scientist

Jared Davis
Flood Management
Utility Craftsworker Apprentice

Jesse Dillon
Engineering
Senior Engineer

David Duval
Operations & Maintenance
C.E.A.

Sophia Fadal
IRWM***—South Central Region
Environmental Scientist

*Hydroelectric Plant
** Hydroelectric Power
*** Integrated Regional Water

Pierre Stephens

The 1997 New Year's Day flood in Northern California marked the start of Pierre Stephens' most rewarding DWR assignment as water supply forecaster.

"I really enjoyed river forecasting," said Pierre, who retired as a Supervising Engineer in December. "It's a very direct benefit to the agencies and operators who manage reservoirs to handle high and low flows. It's easy to know that the time is well spent. The time pressure is challenging, but also liberating, since a timely forecast is more valuable than 20-20 hindsight."

Along with forecasting for high water events, Pierre also provided statewide river runoff forecasts for Bulletin 120 and scheduled water and hydroelectric operations for the State Water Project (SWP).

"Hydrology has a wealth of uncertainties related to missing data and empirical relationships," said Pierre. "You do the best you can in the time you have and try to optimize the solutions."

Before his seven years with Flood Management, Pierre began his 18 years with DWR as a Junior Civil Engineer for the Division of Operations and Maintenance, where he worked on the operations scheduling of the SWP for five years. He also worked three years as a Principal Civil Engineer and Hydrologist for Sacramento Municipal Utility District coordinating hydromet data collection, cloud seeding, river forecasting, and model development, flood studies, and hydrographic activities.

As Chief of the Regional Coordination and Planning Branch (RCP) of the North Central Region Office since 2009, Pierre led RCP employees in support of various programs, such as the California Water Plan, Integrated Regional Water Management grants, climate change, drought, recreation, floodplain management, and interstate water management with Nevada.

Pierre graduated from the University of California, Davis with a Bachelor of Science degree in Agricultural Engineering, then volunteered eight years at non-profit organizations, where he led self-help housing crews and worked on energy efficient projects in the Davis and Occidental areas.

Along with volunteering, Pierre plans to garden, hike, travel, repair his home, and perhaps build another house.

"DWR has been a great place to work," said Pierre. "Good ethics, good people, and a good balance between treating employees well and meeting the needs of the public."

Mike Mirmazaheri

As a DWR expert in hydrology and flood control for 28 years, Mike Mirmazaheri helped find solutions to complex water resources planning and management issues in the Central Valley and Delta.

"The experience and knowledge that I gained at DWR is invaluable," said Mike, who retired as a Delta Levees Program Manager with the FloodSAFE Environmental Stewardship and Statewide Resources Office (FESSRO) in March. "I have always reminded the new and younger staff that DWR is a great organization to work for. It allows you to be a true public servant."

Mike racked up many hours preparing environmental documents, contracts, memorandum of understanding, engineering studies, planning reports, flood emergency action plans, and requests for proposals. He also worked extensively with budget and cost management tools for planning and tracking budgets.

"Working on the Delta Atlas in 1993 was my proudest and most fun project," said Mike. "I enjoyed this project because it involved not just an understanding of the Delta issues, but also some serious art and design work."

When Mike was a Hydrologist with Flood Management in 2004, he was part of the proposal review team for the Flood Protection Corridor Program, which provided funding to restore habitat adjacent to floodplains, such as Dry Creek.

His ability to communicate and proactive style helped him to successfully manage staff and work cooperatively with other State, federal, and local agencies.

He has also assisted with the formulation of two environmental impact reports on the South Delta facilities, an Environmental Impact Report and Environmental Impact Statement feasibility document on the American River Watershed Program, and series of planning reports for the Sacramento and San Joaquin River Basins flood control Comprehensive Study.

Mike is looking forward to a European vacation with his wife in November. He plans to keep his feet wet, so to speak, as a water engineering consultant.

"The water resources community is relatively small and I expect to cross paths with at least some DWR colleagues in the future," said Mike.

Linda Currie

During her 33 years with DWR's Southern Field Division, Linda Currie's most rewarding project was her lead role with Operation and Maintenance's drawing system.

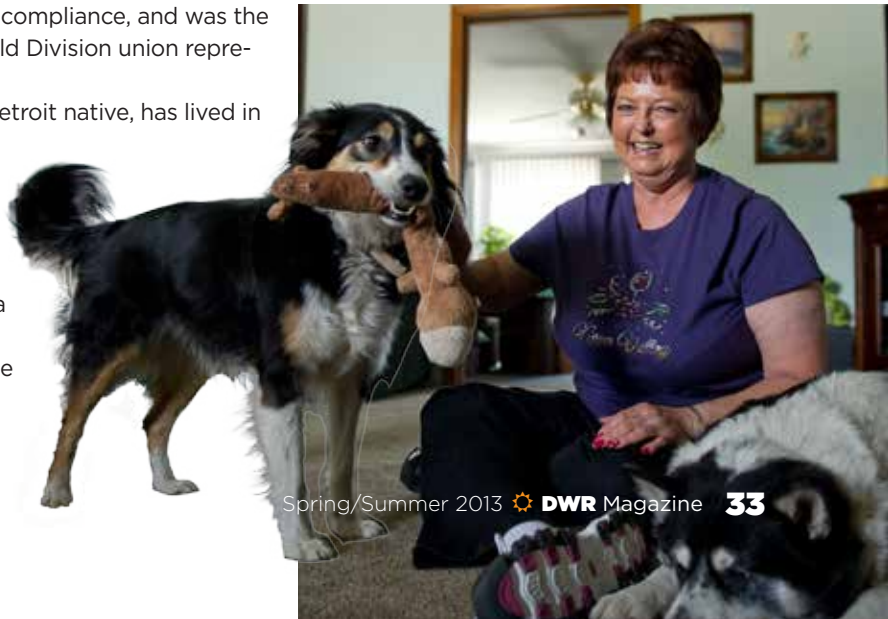
"I traveled to and from all of DWR's field divisions to gather each pumping plant's paper drawings—basically blueprints—and then transferred them into our computer system," said Linda, a Water Resources Engineering Associate, who retired in April. "I hauled all the equipment, including scanners, printers, and plotters. Each facility I visited provided a team to help me scan all of the drawings. I felt it an honor to have been asked to do this project, since the project was designed to enhance the factual information about the facilities and have safer working conditions for the employees."

Linda was also Southern Field Division Warehouse Manager for seven years.

"I supervised, trained, standardized, and organized all of the warehouses functions for the seven warehouses," said Linda. "It was my job to make sure all safety regulations were followed and updates were communicated to staff."

In addition to coordinating orders and training staff on AutoCAD software, she served as the CPR trainer for the field division, surveyed the facility for disability compliance, and was the Southern Field Division union representative.

Currie, a Detroit native, has lived in Lancaster, California for 53 years. Prior to joining DWR in 1979, Linda worked two years with the Department of Industrial Relations and the Board of Equalization Office as an Office Assistant. She also earned an Associate of Science degree in Business and Electronics from Antelope Valley College in Lancaster, California. She plans to travel, enjoy her two dogs, and volunteer in the community.



Promotions

Travis Faria
Delta Field Division
HEP* Operator

Kimberly Flaherty
Operations & Maintenance
Staff Environmental Scientist

Karen Gehrts
Environmental Services
Environmental Program Manager I (Supv.)

Dennis Gyles
Operations & Maintenance
Inspector of Automotive Equipment

Mark Hamilton
Operations & Maintenance
Office Technician (Typing)

Robert Hamilton
Operations & Maintenance
Inspector of Automotive Equipment

Md Haque
Flood Management
Senior Engineer

Elena Hartsough
Engineering
Senior Engineer

Vincent Homdus
Engineering
Senior Engineer

Xiaohong Huang
San Joaquin Field Division
Staff Environmental Scientist

David Inouye
IRWM***—Southern Region
Environmental Program Manager I (Supv.)

Frank Johnson
San Luis Field Division
Water Resources Technician II

Matthew Johnston
Southern Field Division
HEP* Mechanic I

Michael Kelly
Technology Services
Systems Software Specialist II

Gary Lippner
IRWM***—North Central Region
Supervising Engineer

Francisco Llamas
Southern Field Division
Senior HEP** Utility Engineer (Supv.)

Michael Malott
San Joaquin Field Division
HEP* Mechanical Supervisor

Peter Manukyan
IRWM***—South Central Region
Water Resources Technician II

*Hydroelectric Plant
**Hydroelectric Power
***Integrated Regional Water

Charles Keene

To help find solutions for the declining habitat of the Salton Sea, one of North America's most important flyways, is just one of the many challenges that Charles Keene, retired Chief of Southern District's Water Management Branch, enjoyed working on during his four decades with DWR.

"The Salton Sea project was my most memorable assignment because of its scientific and technical complexity and various interactions with other State, federal, local agencies, environmental organizations, consultants, and the general public," said Chuck. "It was challenging because of the various differences of opinion among all the stakeholders—a problem that will likely continue to plague the Salton Sea forever."

As the Southern Region (formerly Southern District) member of the Colorado River and Salton Sea Office, he represented DWR at several public meetings and assisted in responding to 33,000 comment letters received on the draft Environmental Impact Report (EIR) for the Salton Sea Ecosystem Restoration Program. In 2008, Chuck received a unit citation for his efforts.

He also represented DWR on the Salton Sea Science Subcommittee by assisting the Secretary for Natural Resources in overseeing the Salton Sea Advisory Committee charged with identifying a preferred alternative for the restoration of the Salton Sea and helping prepare a joint Environmental Impact Statement/EIR for development of the Species Conservation Habitat Project to help protect fish and wildlife resources at the Salton Sea.

Chuck also represented DWR on several projects, including Environmental Program Manager and Executive Officer for the State Desalination Task Force, Project Manager of the planning and development of the Vista del Lago Visitors Center, and Project Coordination Team Member for the lining of All-American Canal in 2009 and Coachella Canal in 2007.

Chuck's DWR career began as a Youth Aid and later Student Assistant with the Southern Region Office in 1972. He earned his Bachelor of Science Degree in Biology/Biochemistry from the Occidental College in Eagle Rock, California in 1976. Two years later, he became a Junior Planner working on the State Water Project Recreation Program. He was later an Environmental Scientist and Senior Environmental Scientist.

"I remember my work as a Youth Aid to be interesting, but completely different from my college major," said Chuck. "It involved a lot of coordination among different agencies and among people in DWR and, looking back, probably gave me the confidence I needed to work with various people of varying professional disciplines throughout my career."

Chuck plans to continue to stay involved with the Salton Sea during retirement, possibly volunteering and working on the issues the sea continues to face.

"My plans are to enjoy my wife and family each and every day, and to do something fun and different often," said Chuck.

Pete Weisser

DWR Information Officer Pete Weisser retired from DWR's Public Affairs Office in January 2013, ending 38 years of State service.

Pete joined DWR in 1995 after Public Information Office service at the State Department of Fish and Game (now called Fish and Wildlife) and State Department of Health Services. As a news reporter, he covered State government for the San Francisco Chronicle, Associated Press, and Sacramento Bee.

He earned a Journalism degree at the University of California, Berkeley and a Certificate in Public Relations and Marketing at the University of California, Davis. He was an Army sergeant in Germany in the 1960s.

Greg Brown

Greg Brown, a DWR Delta Field Division Control Systems Technician for 13 years, is retiring after working more than a quarter century in State service.

"While with DWR, I have had the opportunity to work on the most advanced communications and control systems in the state," said Greg.

With 27 years of State service between DWR and the Department of General Services, Greg joined DWR in August of 1999. His projects include working on the State Water Project Communications System Upgrade and the State Water Project Control Systems Upgrade, which continues today.

"The SWP Control Systems Upgrade Project is an ongoing task for the Department," said Greg. "I assisted with the installation of programmable logic controllers in many of DWR's pumping plants and check sites."

Reflecting on all of his assignments, Greg highlights moving the Delta Field Division Area Control Center to the Banks Pumping Plant as his most rewarding project.

"I enjoyed it because it was a rush project," said Greg. "It took six weeks to move existing equipment and getting everything to work in its new location."

While Greg plans to spend his retirement with family and spoiling his three grandchildren, he has also found his way back—as a volunteer interpreter—to his first calling as a Nike Hercules Missile Radar Crewman for the United States Army.

In the Golden Gate National Recreation Area, Greg spends time volunteering at Marin Headlands Visitors Center with guests touring the Historic Missile Site SF-88, depicting what life was like at a Nike missile site during the Cold War.

"I explain how the Nikes missiles protected major cities in the U.S. and how the system worked," said Greg. "I enjoy volunteering for the National Park Service. I have worked in the field of electronics all of my life and I consider myself very fortunate to earn a living doing what I enjoy. DWR employees are family. Thank you all for being my family!"

Victoria Foster

While being trained as a water and power dispatcher for the State Water Project, Victoria Foster enjoyed visiting several facilities that she designed during her 21 years with DWR.

"Part of the training was to go see all the field divisions," said Victoria, who retired as a Senior Water and Power Dispatcher in May. "It was the first time I had actually seen on the ground some of the projects I had designed or worked on the design, namely the small coastal plants, the Tehachapi Afterbay, and East Branch Extension plants."

A Decatur, Illinois native and a California General Building Contractor, Victoria joined DWR's Division of Engineering's (DOE) Civil Design Branch in 1992 after a 14-year career with the California Department of Parks and Recreation as a Delineator.

"I prepared contract drawings for Oroville FERC, East Branch Extension, Mojave Bypass, Santa Ana Pipeline and new coastal reaches," said Victoria, who worked as a Water Resources Engineering Associate in DOE. "I also prepared modifications and repairs to dams, canals, pumping plants, and State Water Project (SWP) pipelines on CADD."

After Twelve years in DOE, Victoria joined DWR's Division of Operations and Maintenance as a Water and Power Dispatcher to schedule water and power operations for the SWP.

"I would calculate pumping and generating requirements to meet daily and longer-term operational goals and daily water orders," said Victoria.

The chorus singer – who once performed at New York City's Carnegie Hall – plans to continue to travel and sing with the Sacramento Choral Society.

"This summer I have several trips planned," said Victoria. "I am going on an Italian tour with the Sacramento Choral Society. I will be performing in Venice, Lucca, Rome, and singing at a Mass in St. Peter's Basilica for the new pope. I am also traveling to London, then Paris and hoping to connect with two previous host students from Germany and Belgium."

Victoria also plans to participate in benefit 5k runs, fitness classes, gardening and spending time with her family in California, Colorado, and visiting Hawaii.

Promotions

Max Martinez
Delta Field Division
Senior HEP* Operator

Paul Mayugba
Business Services Office
Business Service Assistant

George Medina
Technology Services
Systems Software Specialist II

Ronald Melcer
FESSRO****
Staff Environmental Scientist

Lisa Melton
Oroville Field Division
Utility Craftsworker

Michael Mierzwa
Flood Management
Principal Engineer

James Mizell
Executive
Attorney III

Ashley Moran
Engineering
Engineer

Kyle Morgado
IRWM***—North Central Region
Engineer

Nancy Moricz
Central Valley Flood Protection Board
Senior Engineer

Armando Ortiz
Operations & Maintenance
Senior HEP** Utility Engineer (Supv.)

Ismail Oudra
IRWM***—South Central Region
Associate Land and Water Use Scientist

Frederick Reyes
Bay Delta Office
Supervising Engineer

James Rich
Statewide Integrated Water Management
Research Prog. Specialist III

Robert Roberts
San Luis Field Division
Senior HEP* Operator

John Ross
Flood Management
Utility Craftsworker Apprentice

Robert Ross
Delta Field Division
Senior HEP* Operator

Arslan Sabir
SWP Power & Risk Office
Electrical Engineer

Brianne Sakata
Operations & Maintenance
Staff Environmental Scientist

Gwen Scholl
Executive
Principal Engineer

Andrew Schwarz
Statewide Integrated Water Management
Senior Engineer

Diane Shimizu
Operations & Maintenance
Staff Environmental Scientist

Patricia Small
Executive
Executive Assistant

Clay Thomas
Operations & Maintenance
Water Resources Engineering Associate

Garrett Townsend
Flood Management
Utility Craftsworker Apprentice

Nicholas Van Ark
Environmental Services
Mate, Fish and Game Vessel

William Vogler
Safety of Dams
Senior Engineer

John Yarbrough
SWP Power & Risk Office
Supervising HEP** Utility Engineer

*Hydroelectric Plant
*** Integrated Regional Water Management

In Memoriam

Lisa Marie Fuller, former DWR Training Officer and acting Staff Services Manager in the Executive Office from 1995 to early 2000s, passed away at the age of 47 on December 28.

In her early 20's, Lisa was diagnosed with Hodgkin's Disease. Her experience with cancer at this young age would shape her life, as she was determined to live an ethical and compassionate life without any regrets. After working for the State for 16 years with DWR and the California Student Aid Commission as a Congressional Liaison for federal student aid, she followed her passion for helping others and became a professional life coach.

A native of Rochester, New York, Lisa lived in New Orleans, Sacramento, and San Francisco. She was an avid traveler. While residing in San Francisco, Lisa began a career with Vanguard Real Estate, where she became an award-winning realtor. In addition to her career successes, she always sought to share her experience with others and was never too busy to comfort or advise those in need.

"Lisa was the kind of person you could always count on no matter what, even in her final days she spent her energy on trying to make things easier for those she left behind," said Mary Ann Benny-Sung, who worked with Lisa and was a long-time friend. "She was selfless, and an inspiration who faced death with courage and grace; she never wasted a minute of the short life that was given to her."

Lisa was a periodic guest speaker on death and dying issues at Sacramento State University, spent time with hospitalized AIDS babies, and participated in numerous charity events to promote services for women and children. In addition to charity work, Lisa enjoyed skydiving, scuba diving, golfing, hiking, mountain climbing, white-water rafting, mountain-biking and countless other ventures.

Preceded in death by a brother, Lisa is survived by her parents, four siblings, and four nieces and nephews.

Those wishing to honor Lisa with donations to a charitable cause may donate in her name to the American Heart Association's "Go Red Campaign" at **www.goredforwomen.org.**

Don Owen, retired Chief of Land and Right of Way, passed away at the age of 83 on March 26.

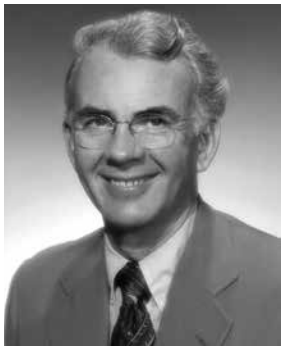
After working as a structural engineer on the Resources Building, first Capitol restoration, and several buildings at California State University and University of California campuses for the Division of Architecture, Don joined DWR in 1959. In addition to working in the Program Analysis Office, he worked for the Divisions of Safety of Dams, Planning, and Land and Right of Way until his retirement in 1991 with 35 years of State service.

During his structural engineer and executive assignments, his projects included working on the planning, design, and construction of several California State Water Project facilities, including the California Aqueduct, the Oroville Dam intake and spillway, the Operations and Maintenance visitors centers, the Middle Fork Suspension Bridge at Oroville, and several dams including Del Valle, Castaic, Pyramid, and Perris. He also worked on the proposed Peripheral Canal.

A graduate of the College of Engineering at the University of California, Berkeley, Don served in the United States Army.

Don is survived by five children and two grandsons. His wife of 54 years, Margaret, died in July of 2012.

Herb Greydanus, retired Executive Division Engineer, passed away at the age of 86 on January 26 in San Antonio, Texas.



Known for his more than 50 years of expertise in water resources planning, development, and facilities operation, Herb worked 25 years for DWR in Executive, Safety of Dams, and Planning. He joined Water Resources in 1953 to lead the Planning and Investigations Section in the Bay Area Branch, where he was respon-sible for resources planning investigations for 13 counties in the Central Coast area. He also supervised the Delta Studies Unit in developing flood control, salinity control, water supply, and drainage in the Sacramento-San Joaquin Delta. He was Chief of Southern District's Planning Branch in 1963, Chief Engineer for the California Water Commission in 1968, and Chief of the Division of Resources Development in 1969. He also was DWR's representative on the Governor's Drought Emergency Task Force and the water resources development team in Chile.

"I enjoyed working with Herb as part of the small team for Governor Edmund G. Brown, Sr. that developed the contracting principles for the State Water Project," said Joseph Burns, former DWR Principal Engineer. "Herb was a thorough engineer."

After leaving DWR as the Chief of the Division of Safety of Dams in 1978, he spent 29 years with Bookman-Edmonston Engineering and GEI Consultants.

Herb graduated in 1948 from the University of Redlands with a Bachelor of Science degree in Engineering-Physics and in 1950 from Stanford University with a Master of Science degree in Civil Engineering. Before joining DWR, Herb worked for the U.S. Bureau of Reclamation in California and Washington, D.C.

He is survived by his wife of 61 years, Kathryn, three sons, and three grandchildren. Memorials may be made to Fremont Presbyterian Church, Rotary Club of Sacramento, Sacramento Region Community Foundation, Crocker Art Museum or the charity of your choice.

Stan Barnes, former California Water Commission Chairman, passed away at the age of 86 on February 5, 2013.

Known for his agricultural water management expertise, he worked for the J.G. Boswell Company and also served on The Reclamation Board during his 50 years as a civil engineer. With his appointment in 1983 and reappointment in 1987, he served 12 years on the California Water Commission (CWC). In 1989, he succeeded Clair Hill as CWC Chairman for two years.

"He was a great engineer and did an outstanding job on The Reclamation Board and the California Water Commission," said Ray Barsch, retired Executive Officer of the California Water Commission.

Stan worked 25 years for the J.G. Boswell Company, where he managed water resources and became one of California's leading experts on agriculture water management and statewide policy. During his J.G. Boswell career, he was also a Reclamation Board member. After his retirement in 1984, he was owner and President of SMB-CE, Inc.

Stan served two years in the United States Navy, then earned a Bachelor of Science degree in Mechanical Engineering from Caltech in 1949. He also earned a Master of Science degree in Civil Engineering and a Degree of Civil Engineer from Stanford.

Stan is survived by three children (Allen and David Barnes, and Carol Berberich), seven grandchildren, eight great-grandchildren, and his longtime companion, Marilyn.

Ted Tsuruda, retired Senior Engineer from the Division of Engineering, passed away on February 1 at the age of 76 due to complications from diabetes.

He began his 35 years of State service as an Assistant Civil Engineer in 1962. Ted worked for the Canals and Levees Section of the Design Office until his retirement in 1997. He worked on several civil engineering projects, including Clifton Court Forebay, Coastal Branch Aqueduct, control check structures along the California Aqueduct, and the Suisun Marsh Salinity Control Gate structure. Ted was a retired annuitant from 1997 to 2008.

"Ted served as a mentor to younger engineers as well as sharing his vast wealth of technical knowledge and design skills with his colleagues," said George Suffal, retired Senior Engineer with the Division of Engineering. "His diligence and dedication served as a role model for all who had the good fortune and pleasure to know him."

Russell Kletzing, retired Assistant Chief Counsel, passed away at the age of 87 on February 15.

Russ graduated from the University of California, Berkeley with degrees in chemistry and law. Russ, who was blind, devised a computer system that included an optical character reader, a "DECtalk" or speech synthesizer, and a Brailer printer. This system read the document aloud and produced a new copy in Braille.

After seven years with the U.S. Department of the Interior, Russ began his 30 years with DWR in 1956. He worked on the first operating agreement with the Bureau of Reclamation in 1960, the San Luis Dam construction agreement in 1961, and the Coordinated Operation Agreement in 1986. He became Assistant Chief Counsel in 1963 and retired from DWR's Office of the Chief Counsel in 1988.

Russ received Department awards for his superior accomplishments in negotiations for the South Bay Aqueduct water supply contract and the State-federal coordinated operations agreement.

From 1961 to 1966, he was President of the National Federation of the Blind. After retirement, he volunteered with Court Appointed Special Advocates and Renaissance Society of Sacramento at California State University, Sacramento.

Russ is survived by his wife of 59 years, Ruth, and a son.

Tom Fujimoto, retired Assistant Executive Officer of the California Water Commission, passed away at the age of 87 on February 11 at Sutter General Hospital in Sacramento.

During his 41 years of State service, he worked in the State Planning Office (SPO) until 1969 when he joined the California Water Commission, where he retired as Assistant Executive Officer in 1991. For SPO, he monitored the conditions of California's rivers and streams.

After his United States Army and military intelligence service, Tom was awarded the Congressional Gold Medal of Honor in Washington, D.C. He was part of the Sacramento JACL, Hokka Kumamoto Kenjin Kai, Military Intelligence Service Association of Northern California, National Japanese American Historical Society, Wakamatsu Colony Memorial, and many other community organizations.

Preceded in death by his wife Amie, Tom is survived by a son, two daughters, and a granddaughter.

Ethel Haynes, retired Printing Trades Specialist II, passed away on March 6.

Ethel joined DWR in 1967 as a Clerk II. She worked for DWR's Division of Management Services in the Reproduction Section as a Printing Trades Specialist until her retirement in 1985.

A native of Texas, Ethel was also a licensed cosmetologist and owner of a beauty salon.

Preceded in death by her husband of 60 years Orester, Ethel is survived by her son, four grandchildren, and 16 great-grandchildren.

Larry Transtrum, retired Supervising Engineer, passed away on January 18 in Fair Oaks.

His career with DWR's Division of Safety of Dams (DSOD) began as a junior civil engineer in 1952. He worked in DSOD's Central Region Section of the Field Engineering Branch until retiring in 1986. He worked as a retired annuitant from 1987 to 2006. A Pearl Harbor survivor and World War II Navy veteran, he worked as a Civil Engineer for more than 40 years,

He is survived by his wife, Irene, son, daughter, five grandchildren, and nine great-grandchildren.

Protecting Our Creeks

As part of the 23rd Annual Sacramento County Creek Week "Nurture Nature" event from April 5-13, Jeff Schuette of DWR's Flood Maintenance Office and his daughter Sarah gathered a bagful of garbage at Arcade Creek's cleanup.

While learning the importance of plants and animals inhabiting our creeks and creek corridors, participants also learned tips for protecting their creek, such as proper waste disposal, recycling, and using native or drought tolerant plants in home landscaping and public spaces.

DWR was among the event's 21 platinum sponsors, including the Delta Conservancy, Reclamation District 1000, CalRecycle, American River Flood Control District, and Sacramento Area Flood Control Agency.

The 2013 Creek Week results exceeded 2012 results with more than 2,500 volunteers, approximately 20 tons of garbage removed at more than 60 clean-up sites throughout Sacramento County, approximately 35 miles of waterways improved, and 80 cubic yards of invasive plants removed. Three additional miles of waterway in the Delta and City of Rancho Cordova were added this year.

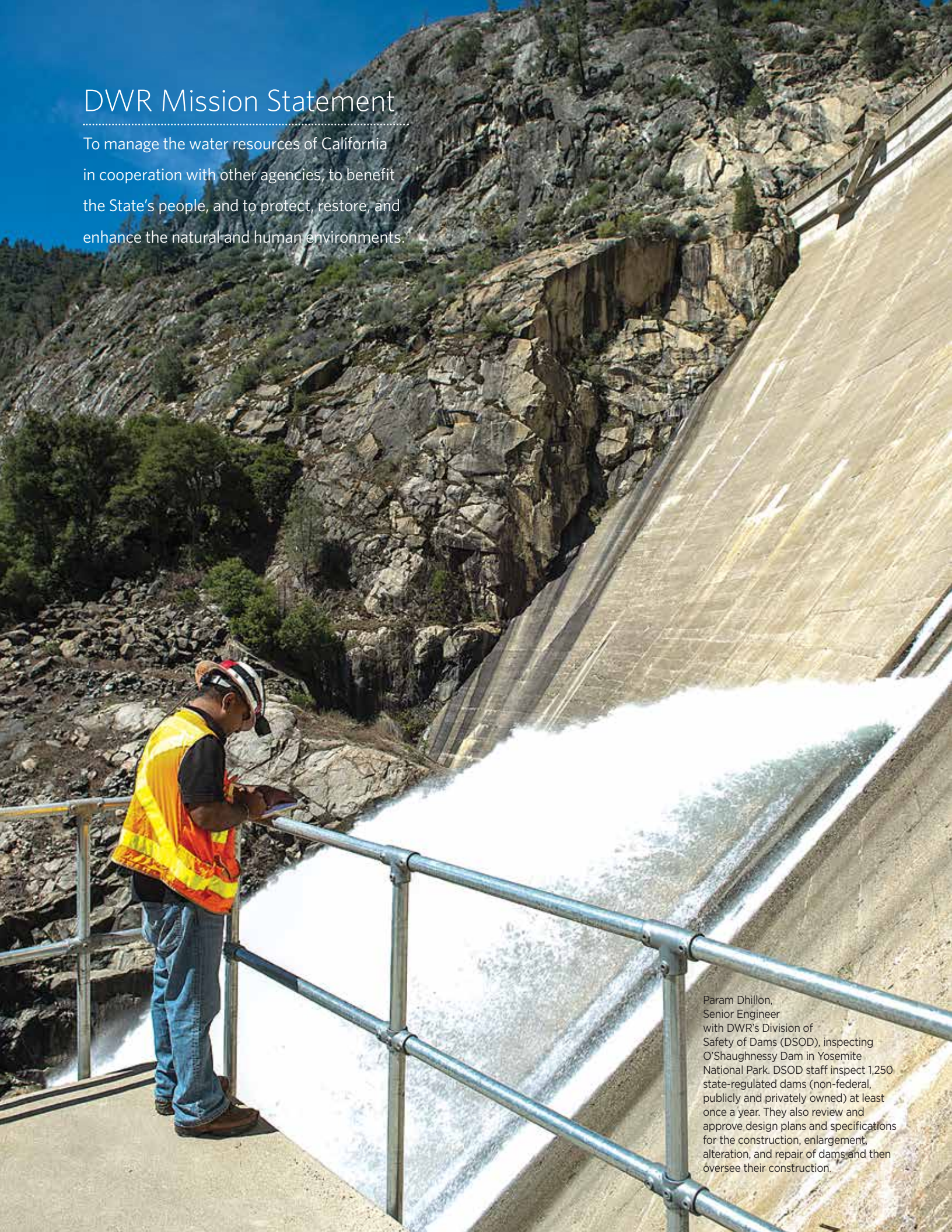
A Creek Week Celebration was held at Carmichael Park, where DWR's Public Affairs Office staff promoted water education while volunteers enjoyed food, music, and interactive exhibits.

The Sacramento Area Creeks Council strives to protect, preserve and enhance our valuable creek resources while helping to reduce the threat of flooding. As DWR's representative on the Council, Michelle Robinson of the Public Affairs Office participated on the Council's children's artwork selection committee and assisted with Council-sponsored school mini-grant selection.

To learn more about Creek Week, visit **www.creekweek.net**

DWR Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.



Param Dhillon, Senior Engineer with DWR's Division of Safety of Dams (DSOD), inspecting O'Shaughnessy Dam in Yosemite National Park. DSOD staff inspect 1,250 state-regulated dams (non-federal, publicly and privately owned) at least once a year. They also review and approve design plans and specifications for the construction, enlargement, alteration, and repair of dams and then oversee their construction.